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Long-Term Stewardship Fiscal Year 2005 Well Maintenance/Abandonment/ Surveillance Report

January 2006

Idaho Cleanup Project

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January 2006

Idaho Cleanup Project
Long-Term Stewardship
Idaho Falls, Idaho 83415

Prepared for the
U.S. Department of Energy
Assistant Secretary for Environmental Management
Under DOE Idaho Operations Office
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ABSTRACT

This report presents the well maintenance activities conducted by the Long-Term Stewardship Project at the Idaho National Laboratory Site during Fiscal Year 2005. Work detailed in this report includes removing and replacing downhole equipment such as pumps, riser pipes, and electrical cables; cleaning and conditioning damaged wells; replacing well caps; cleaning out well screens and boreholes; standardizing well completion components; and collecting video, geophysical, and borehole deviation logs, as necessary. Sixty-eight wells received maintenance.

This report also presents details about the abandonment of 63 wells by Long-Term Stewardship at the Idaho National Laboratory Site during Fiscal Year 2005.

Additionally, this report describes well surveillance. Ninety-five wells were inspected in accordance with the "Idaho National Engineering and Environmental Laboratory Sitewide Well Maintenance Plan" to evaluate well conditions and help prioritize well maintenance activities for Fiscal Year 2006. Wellhead conditions for each well were recorded on well inspection checklists in the field.

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ACRONYMS

ARA	Auxiliary Reactor Area
bls	below land surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFA	Central Facilities Area
FY	fiscal year
hp	horsepower
ICDF	Idaho CERCLA Disposal Facility
ID	identification
INL	Idaho National Laboratory
INTEC	Idaho Nuclear Technology and Engineering Center
PVC	polyvinyl chloride
RadCon	Radiological Control
RWMC	Radioactive Waste Management Complex
SMC	Specific Manufacturing Capability
TAN	Test Area North
TRA	Test Reactor Area
TSF	Technical Support Facility
USGS	United States Geological Survey
VZRP	Vadose Zone Research Park

Long-Term Stewardship Fiscal Year 2005 Well Maintenance/Abandonment/Surveillance Report

1. INTRODUCTION

This report summarizes well maintenance activities completed by the Well Services Group under the Long-Term Stewardship Project during Fiscal Year (FY) 2005 at the Idaho National Laboratory (INL) Site.

Well inspections at the INL Site have been implemented to help improve the efficiency of field sampling and well maintenance activities. Inspections were completed during October 2005 in accordance with the "Idaho National Engineering and Environmental Laboratory Sitewide Well Maintenance Plan" (PLN-758) to evaluate well conditions and help prioritize upcoming well maintenance activities. Inspection efforts were concentrated on wells sampled by the environmental monitoring groundwater sampling program. The conditions of inspected wells were recorded on well inspection checklists (included in Appendix A). The checklists document the condition and types of the following surface components: concrete pads and brass survey markers, surface/well casings, protective posts, well caps and locks, identification (ID) tags, water-level measuring points, access/discharge lines, and electrical plugs. Anomalies and other additional information are also recorded on the inspection checklists. Information collected from the well inspections is used to identify broken or defective components or other well maintenance issues and to identify required maintenance activities.

Well maintenance activities in FY 2005 included conducting well surveillance; replacing pumps, discharge and access pipe, and electrical cables; standardizing downhole equipment; redeveloping boreholes; removing downhole obstructions; abandoning nonfunctional boreholes; repairing wellhead boxes; and collecting borehole deviation and video logs. Wells were maintained sitewide, both inside and outside the INL Site facility fence lines. Some of the work performed in FY 2005 resulted from a preexisting work scope delineated in the *Well Maintenance Work-off Schedule for Fiscal Years 2003, 2004, and 2005* (INEEL 2003), the *Long-Term Stewardship Fiscal Year 2004 Well Abandonment/Surveillance/Maintenance Report* (ICP 2004), and the "Sitewide Well Maintenance at the INEEL in FY 2004" (SOW-1062). The "Sitewide Well Maintenance at the INEEL in Fiscal Year 2005" (SPC-598) was also used to complete work during FY 2005. Well abandonment was performed in accordance with the specifications detailed in "Fiscal Year 2005 Well Abandonment" (SPC-725).

1.1 Background

The INL Site, formerly the National Reactor Testing Station, occupies 890 mi^2 of the northwest portion of the Eastern Snake River Plain and is located approximately 42 mi west of the city of Idaho Falls (Figure 1). The United States Atomic Energy commission, now the Department of Energy, established the National Reactor Testing Station in 1949 as a site to build and test a variety of nuclear facilities. The INL Site has been used to store transuranic radionuclides and radioactive low-level waste since 1952.

During the operational history of the INL Site, approximately 1,200 wells have been drilled to monitor the vadose zone and groundwater. The well maintenance program was established in 2002 to detect and control deterioration of well system structures; repair damaged components; clean out well screens and boreholes; standardize well completion components; and collect video, geophysical, and borehole deviation logs, as necessary. Because the well maintenance program inspects and repairs wells

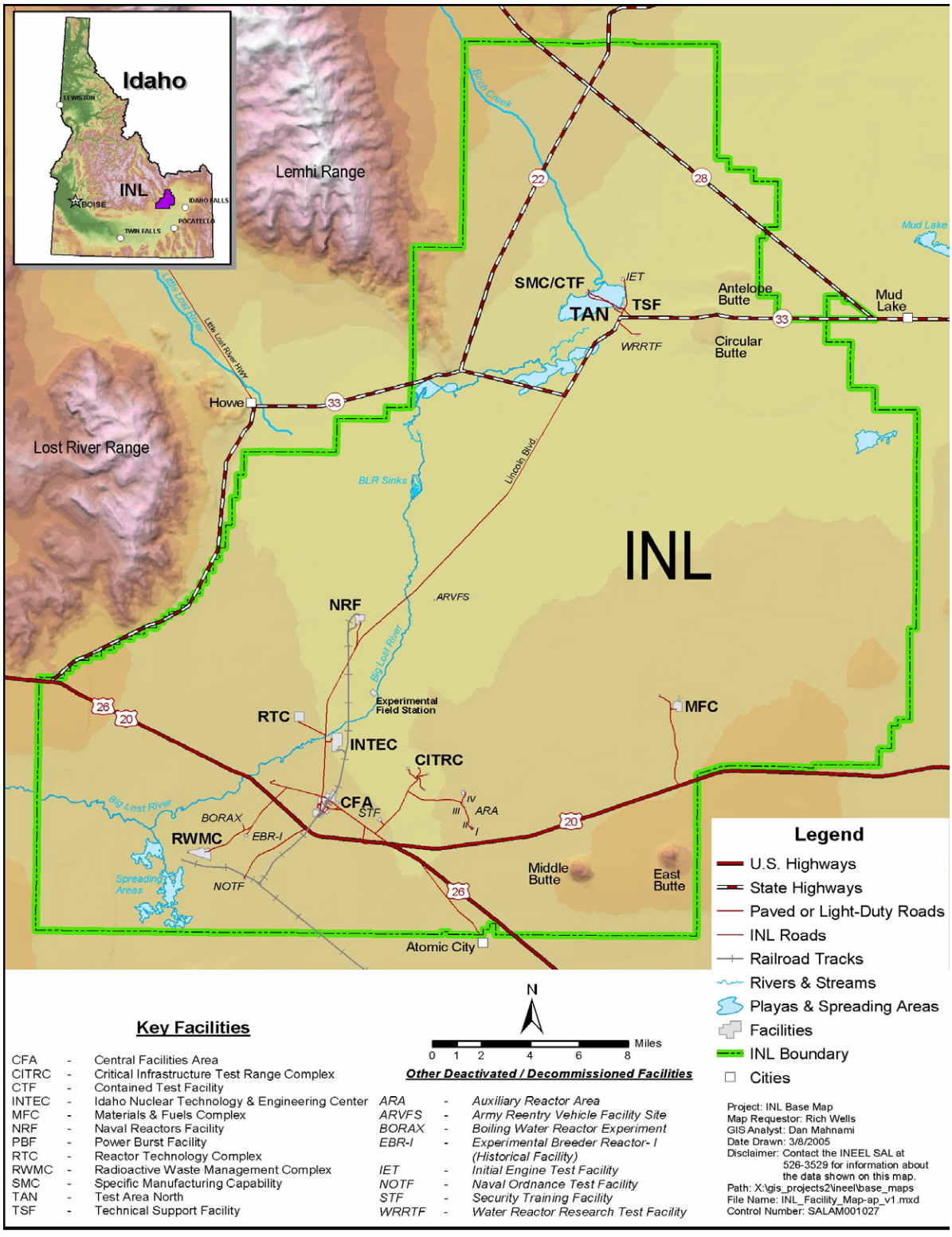

Figure 1. Map of the Idaho National Laboratory Site and its major facilities.

from which routine groundwater samples are collected, the program helps to maximize efficiency and reduce the cost of groundwater monitoring activities.

1.2 Scope

The *Well Maintenance Work-off Schedule for Fiscal Years 2003, 2004, and 2005* (INEEL 2003) listed 20 wells on its maintenance schedule for FY 2005. During FY 2005, the Well Services Group performed maintenance on 68 wells. Throughout the fiscal year, wells that were given a priority were those requiring maintenance that would allow sampling activities to proceed. Many such wells were added to the scope and maintained as part of the routine maintenance activities; several other wells that were scheduled for maintenance were not maintained, because wells of higher priority required immediate maintenance. For example, during groundwater sampling activities (performed to meet state requirements), some wells were found to be nonfunctional at the time of sampling and had to be given immediate attention to meet the sampling schedule.

Well maintenance activities included performing well surveillance, installing pumps, replacing pipe and pumps, removing borehole obstructions, redeveloping boreholes, and repairing/replacing broken wellhead boxes and caps with locking wellhead caps. Each well has been assigned an official ID number, as available, and well name, but various projects have modified many of the well names for project purposes, resulting in confusion regarding well names. This document identifies the ID number, the official name, and the most common alias for each well, which are all listed in Table 1. Wells having a common name that is different than their official name will be identified in this report by the official well name followed by the alias in parentheses. Well modification forms, well surveillance forms, and well abandonment forms included in this report are transcribed from field notes and forms and can be found in the following logbooks:

- ER-132-2005
- ER-199-2004
- ER-113-2005.

The well surveillance forms are maintained in the project files of the Hydrogeologic Data Repository.

Table 1. ID number, official name, and the most common alias for each well.

Well ID	Well Name	Report Alias	Facility[a]	Figure
1007	ARA-MON-A-004	ARA-04	ARA	Figure 2
1006	ARA-MON-A-03A	ARA-03	ARA	Figure 2
450	USGS-001	USGS-1	SOUTH	Figure 2
451	USGS-002	USGS-2	SOUTH	Figure 2
550	USGS-101	USGS-101	SOUTH	Figure 2
553	USGS-104	USGS-104	SOUTH	Figure 2
559	USGS-110	USGS-110	SOUTH	Figure 2
1782	ICPP-1782	ICPP-1782	INTEC	Figure 3
1783	ICPP-1783	ICPP-1783	INTEC	Figure 3
1800	ICPP-1800	ICPP-1800	ICDF	Figure 3
1829	ICPP-1829	ICPP-1829	ICDF	Figure 3

Table 1. (continued).

Well ID	Well Name	Report Alias	Facility[a]	Figure
1831	ICPP-1831	ICPP-1831	ICDF	Figure 3
1057	ICPP-MON-P-001	MW-1	INTEC	Figure 3
1187	ICPP-MON-P-019	MW-18	INTEC	Figure 3
1093	ICPP-MON-P-024	MON-P-024, M17S	INTEC	Figure 3
259	PW-3	PW-3	INTEC	Figure 3
496	USGS-047	USGS-47	INTEC	Figure 3
499	USGS-050	USGS-50	INTEC	Figure 3
501	USGS-052	USGS-52	INTEC	Figure 3
508	USGS-059	USGS-59	INTEC	Figure 3
516	USGS-067	USGS-67	INTEC	Figure 3
571	USGS-122	USGS-122	INTEC	Figure 3
1837	USGS-131	USGS-131	CFA	Figure 5
1931	CFA-1931	CFA-1931	CFA	Figure 5
158	FIRE STATION WELL	FIRE STATION WELL	SOUTH	Figure 5
1349	ICPP-MON-A-164B	164B	VZRP	Figure 5
1350	ICPP-MON-A-164C	164C	VZRP	Figure 5
1352	ICPP-MON-A-166	ICPP-166	INTEC	Figure 5
1383	ICPP-MON-A-167	ICPP-167	VZRP	Figure 5
1425	ICPP-MON-V-212	MON-V-212	INTEC	Figure 5
595	Water Supply for INEL 1	INEL 1	CFA	Figure 5
1823	MIDDLE-1823	TRA-1823	TRA	Figure 5
732	TRA-08	TRA-08	TRA	Figure 5
487	USGS-038	USGS-38	INTEC	Figure 5
488	USGS-039	USGS-39	INTEC	Figure 5
561	USGS-112	USGS-112	INTEC	Figure 5
570	USGS-121	USGS-121	INTEC	Figure 5
1413	USGS-128	USGS-128	CFA	Figure 5
1347	USGS-OBS-A-127	USGS-127	SOUTH	Figure 5
1327	RWMC-MON-A-162	162	RWMC	Figure 6
1212	SOUTH-MON-A-001	M11 S	RWMC	Figure 6
1215	SOUTH-MON-A-004	M-14 S	RWMC	Figure 6
554	USGS-105	USGS-105	SOUTH	Figure 6
557	USGS-108	USGS-108	SOUTH	Figure 6
147	DH-1B	DH 1B	MIDDLE	Figure 7
1345	USGS-OBS-A-126A	USGS-126A	NORTH	Figure 7
1346	USGS-OBS-A-126B	USGS-126B	NORTH	Figure 7
76	ANP-8	ANP-8	WRRTF	Figure 8
751	TAN-15	TAN-15	TAN	Figure 8

Table 1. (continued).

Well ID	Well Name	Report Alias	Facility[a]	Figure
752	TAN-16	TAN-16	TAN	Figure 8
728	TAN-17	TAN-17	TAN	Figure 8
1859	TAN-1859	TAN-59	TAN	Figure 8
1860	TAN-1860	TAN-1860	TAN-GWTF	Figure 8
1861	TAN-1861	TAN-1861	TAN-GWTF	Figure 8
1219	TANT-INJ-A-003	TAN-31	TAN	Figure 8
1163	TANT-MON-A-011	TAN-37A	TAN-TSF	Figure 8
1164	TANT-MON-A-012	TAN-38	TAN-TSF	Figure 8
1165	TANT-MON-A-013	TAN-39	TAN-TSF	Figure 8
1166	TANT-MON-A-014	TAN-40	TAN-TSF	Figure 8
1344	TANT-MON-A-058	TAN-58	TAN	Figure 8
761	PW-13	PW-13	TRA	Figure 9
264	PW-8	PW-8	TRA	Figure 9
265	PW-9	PW-9	TRA	Figure 9
1933	TRA-1933	TRA-1933	TRA	Figure 9
1934	TRA-1934	TRA-1934	TRA	Figure 9
522	USGS-073	USGS-73	TRA	Figure 9

a. ARA = Auxiliary Reactor Area, CFA = Central Facilities Area, GWTF = Groundwater Test Facility, ICDF = Idaho CERCLA Disposal Facility, INTEC = Idaho Nuclear Technology and Engineering Center, RWMC = Radioactive Waste Management Complex, TAN = Test Area North, TRA = Test Reactor Area, TSF = Technical Support Facility, VZRP = Vadose Zone Research Park, WRRTF = Water Reactor Research Test Facility

2. MAINTENANCE PERFORMED

The well maintenance performed in 2005 is organized in this section of the report by facility and well ownership location. A map of each geographic area is provided and is followed by the text record of maintenance performed. Subsections provide the official well name, the most common alias, and the ID number for each well. Additional pertinent information is also included (e.g., the date and type of maintenance that was performed and any observations recorded). Well modification logs are included in Appendix B. Note that the blank fields on the modification forms indicate that no modification was completed for that specific field. For convenience purposes, the official well name and aliases are listed collectively in Table 1.

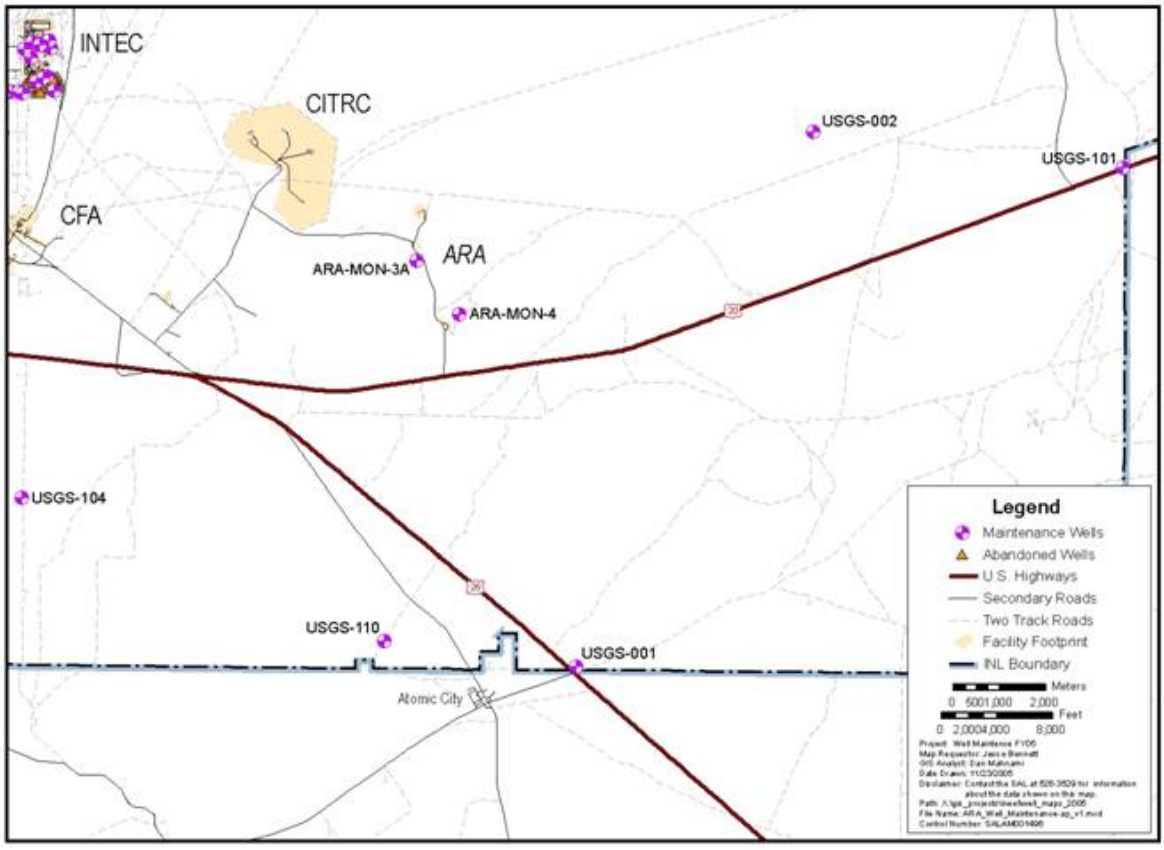

Figure 2. Location of wells near the southern boundary of the site and at the old Auxiliary Reactor Area facility.

ARA-MON-A-004

WELL ID: 1007

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: Northeast of Auxiliary Reactor Area (ARA) VI

3. Date: 11/16/04–11/17/04

4. Video Log Information: No logging was performed.

5. Maintenance Performed: The scope of work was to replace the pump. The old pump and pipe were removed. The motor shaft had broken away from the pump and was reattached. The new pump is a Grundfos 16S50-30 and is 61 in. long. The new pump was lowered to the previous depth.

6. Observations Recorded: None

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Tony Anderson, Hayes Jensen

ARA-MON-A-03A

WELL ID: 1006

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: ARA

3. Date: 11/9/04–11/10/04

4. Video Log Information: No logging was performed.

5. Maintenance Performed: The scope of work was to replace the pump. The old pump was pulled and replaced with a Grundfos 16S50-38. The weephole was moved from 120 ft above the pump to 40 ft above the pump.

6. Observations Recorded: The water level was at 608.86 ft below land surface (bls).

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Luis Rosario, Tony Anderson, Hayes Jensen

USGS-001

WELL ID: 450

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: Southern INL Site boundary

3. Date: 6/20/05–07/07/05

4. Video Log Information: Video logging was performed on 06/22/05 by the United States Geological Survey (USGS) and showed that the well was filled with sand to 612 ft bls. The pump needs to be set at 620 ft bls.

5. Maintenance Performed: The scope of work was to remove the pipe and pump and to remove sand from the bottom of the well. The sand was removed using a temporary sand pump. The galvanized-steel water access line was replaced with a new stainless-steel line. The pump was returned to the original depth.

6. Observations Recorded: There was 24 ft of sand in the bottom of the well.

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Tony Anderson, Dale Gordon, Hayes Jensen, Gary Jensen

USGS-002

WELL ID: 451

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: Four miles southwest of Materials and Fuels Complex

3. Date: 06/16/05–06/28/05

4. Video Log Information: Video logging revealed an obstruction.

5. Maintenance Performed: The scope of work was to remove the pipe and pump and replace the water-level access line. An obstruction in the well was found at 684 ft. A measuring tape was removed from the well. The pump was then returned to the original depth. The 1-in. carbon-steel access line was replaced with a 1-in. stainless-steel access line. A hole in the 6-in. surface casing was repaired by placing a 5-in. casing inside the 6-in. casing and filling the annulus with bentonite. A 6-in. ring was welded to the bottom of the 5-in. casing prior to installation to hold the bentonite inside the annulus.

6. Observations Recorded: None

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Dale Gordon, Hayes Jensen, Neil Shibley

USGS-101

WELL ID: 550

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: At the INL Site Boundary on Highway 20

3. Date: 06/15/05–07/14/05

4. Video Log Information: No logging was performed.

5. Maintenance Performed: The scope of work was to replace pipe and clean out the well. The water-level access pipe, the discharge pipe, and the pump were removed. The well was cleaned by bailing and pumping. The pump was reinstalled to the original depth of 800 ft bls with stainless-steel riser and access lines.

6. Observations Recorded: None

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Dale Gordon, Hayes Jensen, Neil Shibley

USGS-104

WELL ID: 553

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: Southern INL Site boundary

3. Date: 10/5/05–10/18/05

4. Video Log Information: Logging was performed to 540.6 ft.

5. Maintenance Performed: The scope of work was to install a new pump and replace the riser and water-level access lines. The new pump is a Grundfos 16S50-38 installed to a depth of 590.4 ft bls (pump bottom). The galvanized-steel access and riser lines were replaced with stainless-steel lines.

6. Observations Recorded: None

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Gary Oberhansley
Crew: Tony Anderson, Dale Gordon, Gary Johnson

USGS-110

WELL ID: 559

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: Southern INL Site boundary, just east of USGS-105

3. Date: 10/4/05–10/13/05

4. Video Log Information: A video log was completed.

5. Maintenance Performed: A new Grundfos 16S50-38 pump was installed to a depth of 616.1 ft bls (bottom of pump).

6. Observations Recorded: None

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Gary Oberhansley
Crew: Tony Anderson, Gary Johnson

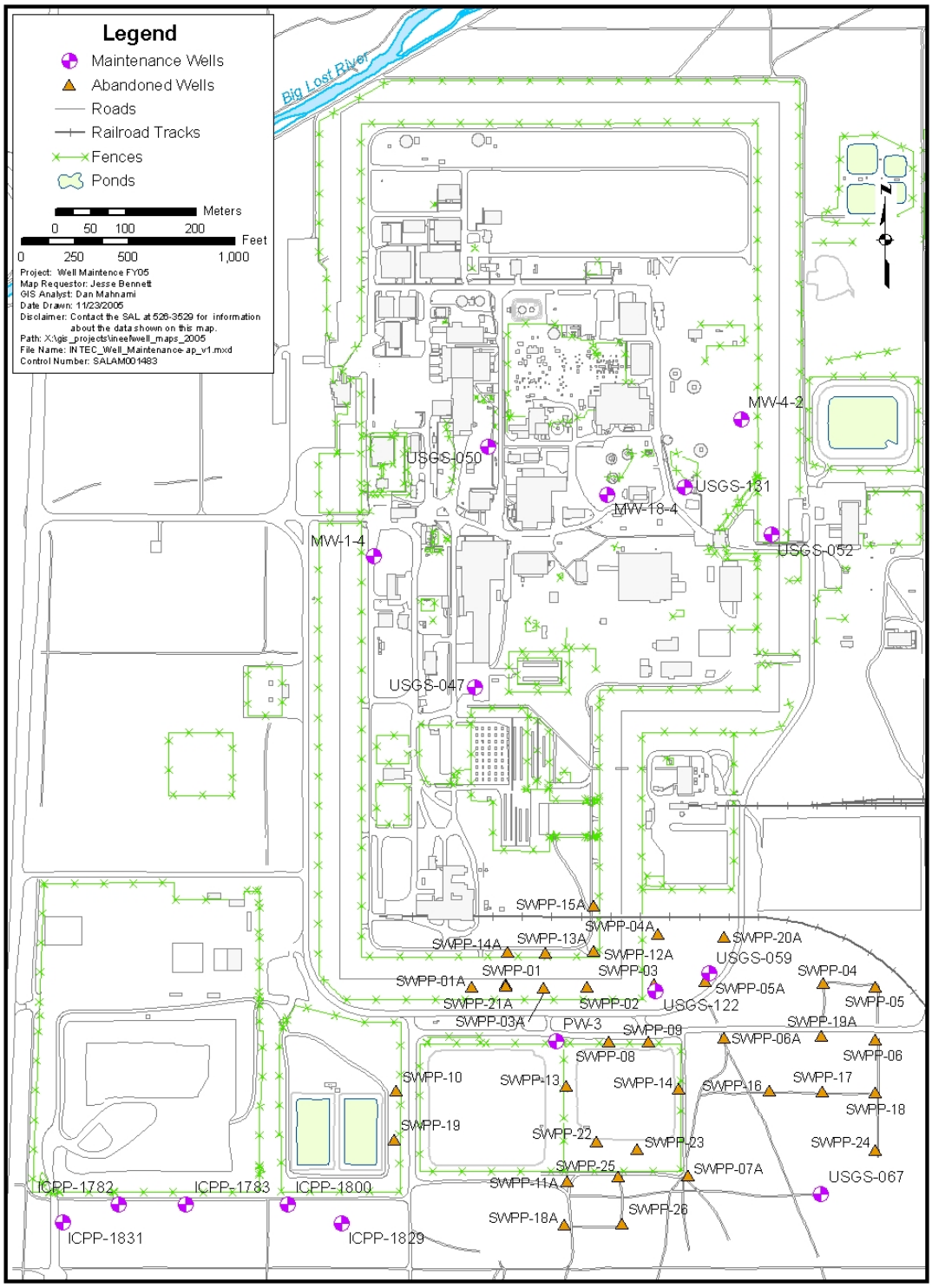

Figure 3. Location of wells at the Idaho Nuclear Technology and Engineering Center.

ICPP-1782

WELL ID: 1782

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: Inside the Idaho CERCLA Disposal Facility (ICDF)

3. Date: 05/25/05

4. Video Log Information: No logging was performed.

5. Maintenance Performed: The scope of work was to lower the pump and pipe 10 ft. The pump was lowered to 488.5 ft bls (inlet).

6. Observations Recorded: None

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Tony Anderson, Hayes Jensen

ICPP-1783

WELL ID: 1783

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: Inside the ICDF

3. Date: 05/25/05

4. Video Log Information: No logging was performed.

5. Maintenance Performed: The scope of work was to lower the pump and pipe. The pump and discharge line were lowered to 491.3 ft bls (inlet).

6. Observations Recorded: None

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: J. Cook
Crew: Tony Anderson, Hayes Jensen

ICPP-1800

WELL ID: 1800

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: Inside the ICDF

3. Date: 05/25/05

4. Video Log Information: No logging was performed.

5. Maintenance Performed: The scope of work was to lower the pump and pipe 10 ft. The pump was lowered to 488.5 ft bls (inlet).

6. Observations Recorded: None

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Tony Anderson, Hayes Jensen

ICPP-1829

WELL ID: 1829

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: Inside the ICDF

3. Date: 05/25/05

4. Video Log Information: No logging was performed.

5. Maintenance Performed: The scope of work was to lower the pump and pipe 10 ft. The pump was lowered to 489.8 ft bls (inlet).

6. Observations Recorded: None

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Tony Anderson, Hayes Jensen

ICPP-1831

WELL ID: 1831

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: Inside the ICDF

3. Date: 05/25/05

4. Video Log Information: No logging was performed.

5. Maintenance Performed: The scope of work was to lower the pump and discharge pipe 10 ft. The pump was lowered to 488.5 ft bls (inlet).

6. Observations Recorded: None

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Tony Anderson, Hayes Jensen

ICPP-MON-P-001

WELL ID: 1057

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: Inside the east fence at INTEC

3. Date: 11/08/04 and 05/17/05

4. Video Log Information: No logging was performed.

5. Maintenance Performed: The pump was replaced with a 3-horsepower (hp) Rediflow pump. A new landing plate had to be made to fit the 1-1/4 npt opening. The top 21-ft section of pipe was trimmed by 3 ft and rethreaded, and the pump was installed to a depth of 333.53 ft bls. On 05/17/05, the pump was pulled to replace the motor. It was replaced with a 3-hp Franklin Electric motor. The pump reinstalled to the same depth.

6. Observations Recorded: The water level was at 127.7 ft bls.

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Tony Anderson, Hayes Jensen

ICPP-MON-P-019

WELL ID: 1187

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: Central INTEC

3. Date: 11/09/04

4. Video Log Information: No logging was performed.

5. Maintenance Performed: The Grundfos pump and pipeline were removed from the well, and the pump was put in storage.

6. Observations Recorded: Radiological Control (RadCon) detected no contamination on the pump or pipe.

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Tony Anderson, Hayes Jensen

ICPP-MON-P-024

WELL ID: 1093

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: South side of INTEC sewage treatment ponds

3. Date: 10/25/04

4. Video Log Information: No logging was performed.

5. Maintenance Performed: The pump was lowered 3 ft from 69.9 ft to 72.9 ft bls.

6. Observations Recorded: None

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Tony Anderson, Dave Hawley, Gary Jensen

PW-3

WELL ID: 259

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: South end of INTEC

3. Date: 05/24/05

4. Video Log Information: No logging was performed.

5. Maintenance Performed: The scope of work was to install new pipe and a pump. The new water-level access pipe is 1 in. stainless steel, and the new discharge line is 1-1/4 in. stainless steel. The new pump is a Grundfos 16S50-38.

6. Observations Recorded: None

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Tony Anderson, Hayes Jensen

USGS-047

WELL ID: 496

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: Inside INTEC

3. Date: 09/29/05–10/05/05

4. Video Log Information: No logging was performed.

5. Maintenance Performed: The scope of work was to extend the surface casing and the cement box around the wellhead, build up the ground surface flush to the new height of the wellhead, slope the surface away from the well, and replace the pump. The 6-in.-diameter surface casing was extended by 10 in. The 3-ft × 3-ft cement box has a cast-iron holding plate on the top to support the manhole cover. Extensions were welded to the holding plate to extend the height by 5 ft. The extension was welded on, but the weld did not hold due the materials involved, so silicon caulk was used to reinforce the weld joint. The pump was replaced with a Grundfos 16S50-38. The pump bottom was placed at 488.1 ft bls. Five inches of new asphalt was added on 11/07/05. The elevation will need to be resurveyed. See Figure 4 for a description of the modifications.

6. Observations Recorded: The wellhead is covered by a 26-in. × 26-in. cast-iron manhole cover.

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Gary Oberhansley
Crew: Tony Anderson, Dale Gordon, Gary Jensen

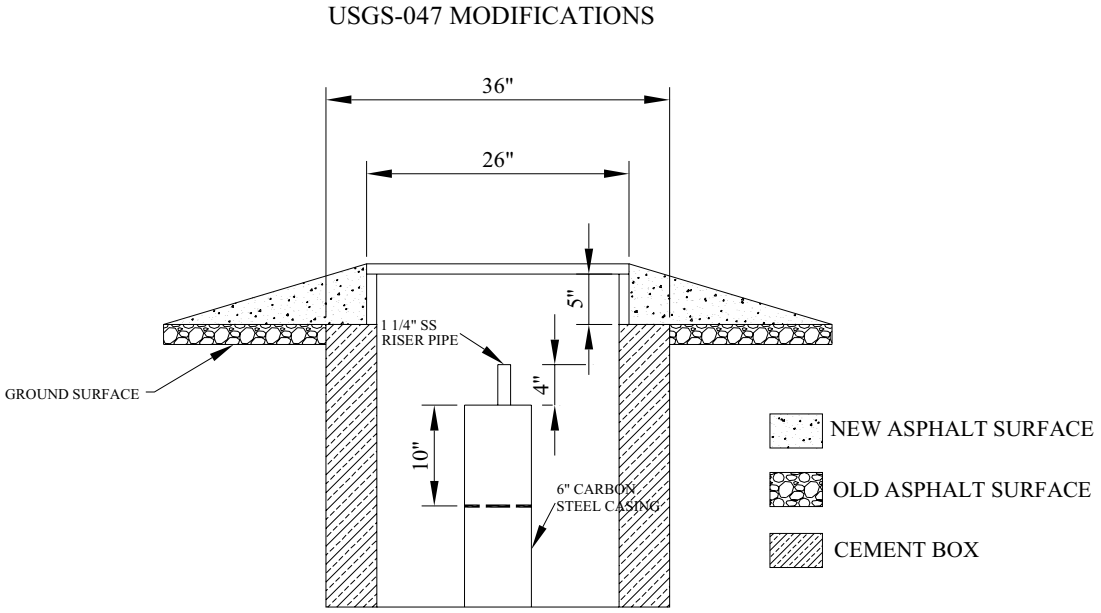

Figure 4. Diagram of USGS-047 modifications.

USGS-050

WELL ID: 499

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: Inside INTEC

3. Date: 11/04/04–11/05/04

4. Video Log Information: No logging was performed.

5. Maintenance Performed: A new 3-hp Grundfos pump was installed to a depth of 391.2 ft bls. The upper 21-ft section of riser was replaced with two 10-ft sections. The landing plate was also replaced.

6. Observations Recorded: The water level was at 378.87 ft.

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Tony Anderson, Hayes Jensen, Luis Rosario

USGS-052

WELL ID: 501

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: Inside INTEC

3. Date: 11/09/04

4. Video Log Information: No logging was performed.

5. Maintenance Performed: The pump and pipeline were removed from the well.

6. Observations Recorded: The water level was at 460 ft bls. RadCon detected no contamination on the pump or pipe. The well was missing a lock, and USGS was contacted to replace it.

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Luis Rosario, Hayes Jensen

USGS-059

WELL ID: 508

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: Northeast of the new INTEC percolation ponds

3. Date: 10/26/04–10/28/04

4. Video Log Information: No logging was performed.

5. Maintenance Performed: The scope of work was to replace the pump motor and galvanized riser and access lines with stainless-steel lines. The new pump is a 5-hp, three-phase Grundfos model 16S50-38. The pump was placed at 481 ft bls.

6. Observations Recorded: None

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Tony Anderson, Hayes Jensen

USGS-067

WELL ID: 516

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: East of the new INTEC percolation ponds

3. Date: 10/28/04–11/29/04

4. Video Log Information: No logging was performed.

5. Maintenance Performed: A new Grunfos 16S50-38 pump was installed. A weephole was drilled in the discharge pipe above the pump.

6. Observations Recorded: None

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Tony Anderson, Hayes Jensen

USGS-122

WELL ID: 571

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: North of the new INTEC percolation ponds

3. Date: 10/28/04

4. Video Log Information: No logging was performed.

5. Maintenance Performed: The scope of work was for the pump and the galvanized water-level access line to be removed. A Grundfos 1.5-hp pump was removed and placed in storage. The galvanized access and riser lines were scrapped.

6. Observations Recorded: None

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Tony Anderson, Hayes Jensen

USGS-131

WELL ID: 1837

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: Three miles northeast of Radioactive Waste Management Complex (RWMC)

3. Date: 10/5/05–10/25/05

4. Video Log Information: Logging was performed to 749 ft on 10/17/05.

5. Maintenance Performed: The well was cleaned to 770 ft bls. A new pipe and Grundfos 16S50-38 pump were installed to the original depth, and the galvanized lines were replaced with stainless-steel access line and riser pipe.

6. Observations Recorded: Flowmeter and temperature logging were performed. The water level was recorded at 562.6 ft bls.

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Gary Oberhansley
Crew: Trevor Anderson, Joel Peck, Luis Rosario

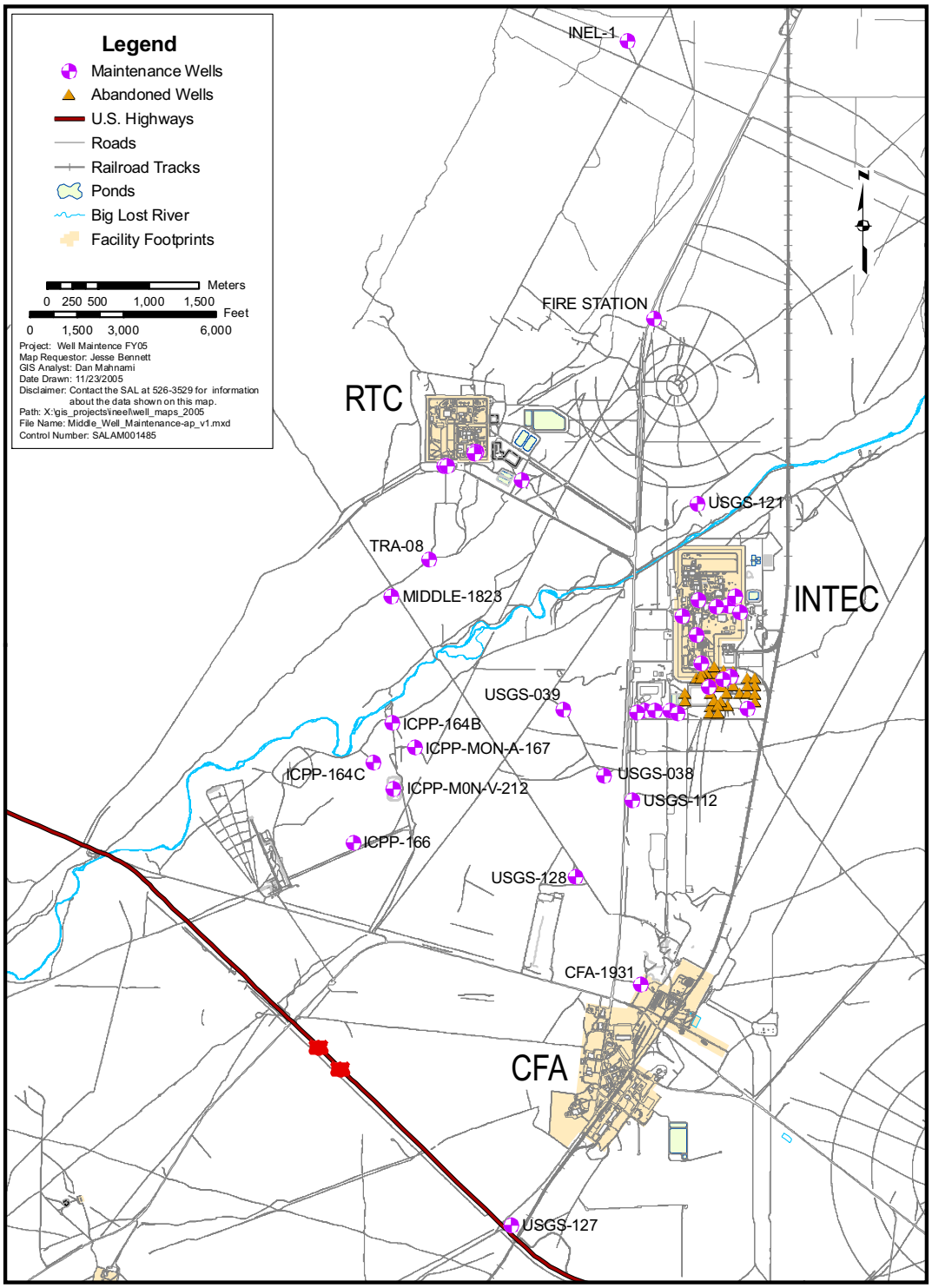

Figure 5. Locations of wells in the central area of the Idaho National Laboratory Site, outside of facility boundaries.

CFA-1931

WELL ID: 1931

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: At the Central Facilities Area (CFA) landfill

3. Date: 10/27/05

4. Video Log Information: No logging was performed.

5. Maintenance Performed: The scope of work was a pump inspection, which showed that the pump should be replaced. A new Grundfos 16S50-38 was installed to the depth of 510.1 ft bls (pump bottom).

6. Observations Recorded: The water level was at 485.3 ft bls.

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Gary Oberhansley
Crew: Trevor Anderson, Luis Rosario

FIRE STATION WELL

WELL ID: 157

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: Two miles north of INTEC, on the east side of Lincoln Road

3. Date: 12/3/04 and 03/16/05–03/22/05

4. Video Log Information: On 03/21/05, the USGS performed video logging and gyro deviation on this well.

5. Maintenance Performed: The scope of work was to replace the pump and install a water-level access line. The pump was not working. A Hitachi Industrial pump was installed. The water-level access line is 1-in. stainless-steel pipe, and the riser is 2-in. carbon-steel pipe. The top of the pump is at 480.8 ft, and the pump intake is at 483.9–484.1 ft bls. Four hundred fifty gallons were pumped to clean out the well.

6. Observations Recorded: Rust was observed in the 10-in. casing at 420 ft bls and increased with depth.

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Tony Anderson, Trevor Anderson, Hayes Jensen

ICPP-MON-A-164B

WELL ID:1349

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: In the Vadose Zone Research Park (VZRP), approximately 1.5 mi west of INTEC

3. Date: 11/30/04–03/21/05

4. Video Log Information: No logging was performed.

5. Maintenance Performed: The scope of work was to clean sand out of the well. A line was used to pull up sand. The well was then blown out to clear water. The pipe and pump were replaced to the previous depth. In March, the pump was pulled again, because it was incapable of lifting water to the surface. The pump was replaced with a Rediflow2 pump and installed to the original depth.

6. Observations Recorded: None

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Tony Anderson, Trevor Anderson, Hayes Jensen

ICPP-MON-A-164C

WELL ID: 1350

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: VZRP

3. Date: 06/08/05

4. Video Log Information: No logging was performed.

5. Maintenance Performed: The scope of work was to pull the pump and pipe. A new Grundfos 230S400-12 was installed to a depth of 518.8 ft bls (pump bottom).

6. Observations Recorded: None

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Tony Anderson, Trevor Anderson, Hayes Jensen

ICPP-MON-A-166

WELL ID: 1352

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: One-quarter mile southwest of the new INTEC percolation ponds

3. Date: 10/25/04–10/26/04

4. Video Log Information: No logging was performed.

5. Maintenance Performed: The scope of work included replacing the pump and motor. The discharge line, water access line, and pump were removed earlier. Sand was poured down the discharge line to raise the bottom to 532.5 ft bls. Pea gravel was added to the casing, and the bottom level was raised to 530.2 ft bls. Sand and gravel were added to stabilize the well screen. A new Grundfos 16S50-38 pump was installed to a depth of 521.43 ft (pump top). The well was purged for 15 minutes, after which the water was clear. The pump level was remeasured at 521.43 ft bls.

6. Observations Recorded: The water level was at 509 ft.

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Luis Rosario, Hayes Jensen, Trevor Anderson

ICPP-MON-A-167

WELL ID: 1383

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: North VZRP

3. Date: 04/06/05–04/07/05

4. Video Log Information: No logging was performed.

5. Maintenance Performed: A new Grundfos 16S50-38 pump was installed to a depth of 502.4 ft bls (pump bottom).

6. Observations Recorded: None

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Hayes Jensen, Trevor Anderson

ICPP-MON-V-212

WELL ID: 1425

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: Middle berm at the VZRP

3. Date: 10/31/05–11/05/05

4. Video Log Information: Logging performed on 11/4/05 showed 4-ft 10-in. sections of polyvinyl chloride (PVC) pipe in the well.

5. Maintenance Performed: The scope of work was to clean out the well and install a pump. The well was blown clean. Four sections of PVC were removed. One of the PVC sections was broken downhole, and the pieces of the debris were airlifted from the well. The well end cap was broken and blown out while airlifting. Sand and pea gravel were added to the well to stabilize the screen. The sand and gravel brought the total depth of the well screen to 248 ft bls. A new Grundfos 10S30-34 pump was installed to a depth of 247.2 ft bls.

6. Observations Recorded: The water level was at 233 ft bls.

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Gary Oberhansley
Crew: Trevor Anderson, Luis Rosario

Water Supply for INEL 1

WELL ID: 595

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: North of the Test Reactor Area (TRA)

3. Date: 11/24/04–05/10/05

4. Video Log Information: The USGS completed video logs on 05/04/2005 and 05/06/2005.

5. Maintenance Performed: The scope of work was to soak and swab the well with a solution of deionized water and acetic acid and to replace the pump and lower pump lines. A total of 1,100 gal of solution was pumped into the well. After soaking and swabbing the well, the pH of the water was monitored until the pH returned to 7. The pump was replaced with a Grundfos 16S50-38. Forty-two feet of total length was added to the pump line. The pump was lowered to an inlet depth of 483 ft bls.

6. Observations Recorded: Video logged before cleaning on 05/04/2005 showed heavy buildup of rust and iron bacteria below 380 ft bls. The water level was at 407 ft bls.

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Tony Anderson, Hayes Jensen

MIDDLE-1823

WELL ID: 1823

1. 1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: East of INTEC on the Big Lost River

3. Date: 06/09/05

4. Video Log Information: No logging was performed.

5. Maintenance Performed: The scope of work was to replace the pump. A Grundfos 16S50-38 was installed to the original depth.

6. Observations Recorded: None

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Tony Anderson, Dale Gordon, Hayes Jensen

TRA-08

WELL ID: 732

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: South of TRA, on the north side of the Big Lost River

3. Date: 10/04/05–10/31/05

4. Video Log Information: Logging was performed on 10/18/05 to verify that the well was cleaned out.

5. Maintenance Performed: The scope of work was to replace the pump. The well required that debris be cleaned out, and a tricone drill bit was used to ream the well to 499.7 ft. The pump was coated with iron bacteria and mineral deposits. The pump was replaced with a Grundfos 10S30-34. The pump was installed to a depth of 497.2 ft bls (bottom of pump). Water was pumped to 315 ft using this pump and was drawn down with slow recharge. On 10/31/05, the pump motor and access line were replaced to correct the slow pumping.

6. Observations Recorded: The water level was at 489.1 ft bls.

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Gary Oberhansley
Crew: Tony Anderson, Dale Gordon, Gary Jensen

USGS-038

WELL ID: 496

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: Southwest of INTEC

3. Date: 10/03/05–10/24/05

4. Video Log Information: Video logging was performed before maintenance revealed a bridge at 612 ft bls. After the obstruction was removed, a video log was performed to 708 ft bls.

5. Maintenance Performed: The scope of work was to clean out blockage at 612 ft bls and replace the pump and pipes. The borehole was cleaned out to 724 ft bls. A new Grundfos 16S50-38 was installed to a depth of 649.7 ft bls.

6. Observations Recorded: Gamma/gamma, video, and gyro logs were performed on 10/05/05. The water level was measured at 483.4 ft bls on 10/24/05.

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Gary Oberhansley
Crew: Trevor Anderson, Joel Peck, Luis Rosario

USGS-039

WELL ID: 488

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: East of INTEC

3. Date: 11/30/04–12/02/04

4. Video Log Information: No logging was performed.

5. Maintenance Performed: The scope of work was to add pipe to the water-level access line and pump line. A 4-ft section of stainless-steel pipe was added to the total length of both lines.

6. Observations Recorded: None

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Tony Anderson, Trevor Anderson, Hayes Jensen

USGS-112

WELL ID: 561

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: Southwest of INTEC

3. Date: 10/29/04–11/22/04

4. Video Log Information: No logging was performed.

5. Maintenance Performed: The scope of work was to replace the old pump and the galvanized water access and discharge lines. A new Grundfos 16S50-38 was installed to a bottom depth of 500 ft bls. The landing plate was altered to allow for larger gage wire.

6. Observations Recorded: None

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Hayes Jensen, Tony Anderson

USGS-121

WELL ID: 121

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: Approximately 0.5 mi north of INTEC

3. Date: 11/29/04–12/3/2004

4. Video Log Information: USGS performed logging on 11/30/04. A 20-ft section of 1-in.-diameter pipe was in the well. Two plastic bailers were also in the well.

5. Maintenance Performed: The scope of work was to pull and replace the pump. The pump and pump line were removed, and video and gyro deviation logs were performed. Foreign objects in the well were removed by the Major Drilling Company crew. The pump line was replaced with a stainless-steel line, and the pump was replaced with a Grundfos 10S30-34 that was installed to 473 ft bls (pump bottom). The landing plate was also replaced.

6. Observations Recorded: Abundant rust flakes from the casing were observed in the bottom of the well.

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Tony Anderson, Hayes Jensen

USGS-128

WELL ID: 1413

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: Near the CFA landfill

3. Date: 11/15/04–11/16/04

4. Video Log Information: No logging was performed.

5. Maintenance Performed: The scope of work was to replace the pump and wiring. After the pipe was removed, it was noted that the galvanized steel had deteriorated, and the decision was made to replace it with stainless-steel pipe. The new wiring for the pump is 8-gage, #10 ground wire.

6. Observations Recorded: None

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Tony Anderson, Hayes Jensen

USGS-OBS-A-127

WELL ID: 1347

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: South of CFA

3. Date: 12/02/04

4. Video Log Information: No logging was performed.

5. Maintenance Performed: The scope of work was to remove an ice block from the well. A 5-ft-long block of ice was found and broken loose at 127 ft bls. The pipe and pump were reinstalled to their original depth.

6. Observations Recorded: None

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Tony Anderson, Trevor Anderson, Hayes Jensen

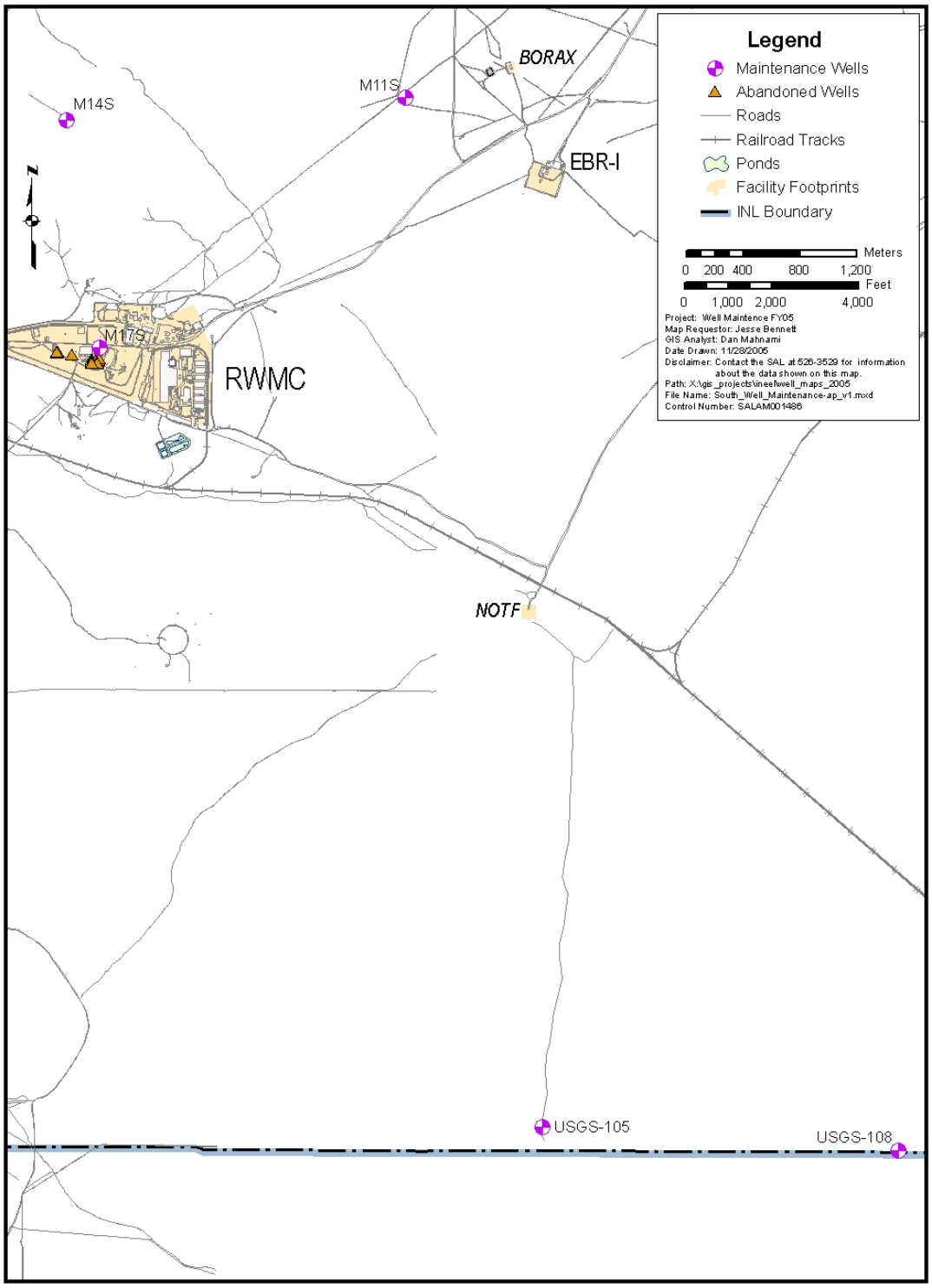

Figure 6. Location of wells at, and south of, the Radioactive Waste Management Complex.

RWMC-MON-A-162

WELL ID: 1327

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: Inside the RWMC

3. Date: 11/10/04

4. Video Log Information: No logging was performed.

5. Maintenance Performed: The scope of work was to pull the pump and riser. In the process of pulling the pump and riser, 1 gal of water was spilled. RadCon personnel tested this water for contamination. Plastic was formed to capture any runoff or leaking from pipes.

6. Observations Recorded: None

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Luis Roserio, Tony Anderson, Hayes Jensen

SOUTH-MON-A-001

WELL ID: 1212

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: North of RWMC

3. Date: 10/11/05–10/12/05

4. Video Log Information: No logging was performed.

5. Maintenance Performed: The scope of work was to replace the pump. A new Grundfos 16S50-38 was installed to the previous depth of 607.8 ft bls (top of pump).

6. Observations Recorded: Minor cracking was noted in the cement pad. The water level was measured at 511.3 ft bls.

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Tony Anderson, Hayes Jensen

SOUTH-MON-A-004

WELL ID: 1215

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: North of RWMC

3. Date: 11/17/04–11/18/04

4. Video Log Information: No logging was performed.

5. Maintenance Performed: The scope of work was to replace the pump. The new pump is a 5-hp Grundfos. The discharge pipe was replaced with stainless-steel pipe, but the depth and length of the pipe were not changed.

6. Observations Recorded: None

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Tony Anderson, Hayes Jensen

USGS-105

WELL ID: 554

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: On the southern border of the INL Site, southeast of the RWMC

3. Date: 06/20/05–06/30/05

4. Video Log Information: No logging was performed.

5. Maintenance Performed: The scope of work was to pull and replace the pipe. The discharge line was replaced with 1-1/4 in. stainless-steel pipe, and the water access line was replaced with 1-in. stainless-steel pipe. The pump was reinstalled to a depth of 700 ft bls, and the water access line was installed to a depth 695 ft bls.

6. Observations Recorded: None

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Dale Gordon, Neil Shibley

USGS-108

WELL ID: 557

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: On the southern boundary of the INL Site, just east of USGS-105

3. Date: 06/21/05–07/05/05

4. Video Log Information: No logging was performed, though previous logging had identified an obstruction in the well.

5. Maintenance Performed: The scope of work was to remove a length of loose pipe from the well. The pipe and pump were removed, and a 130-ft section of 1-in. PVC was removed from the well. The pipe and pump were returned to their original depth.

6. Observations Recorded: None

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Dale Gordon, Neil Shibley

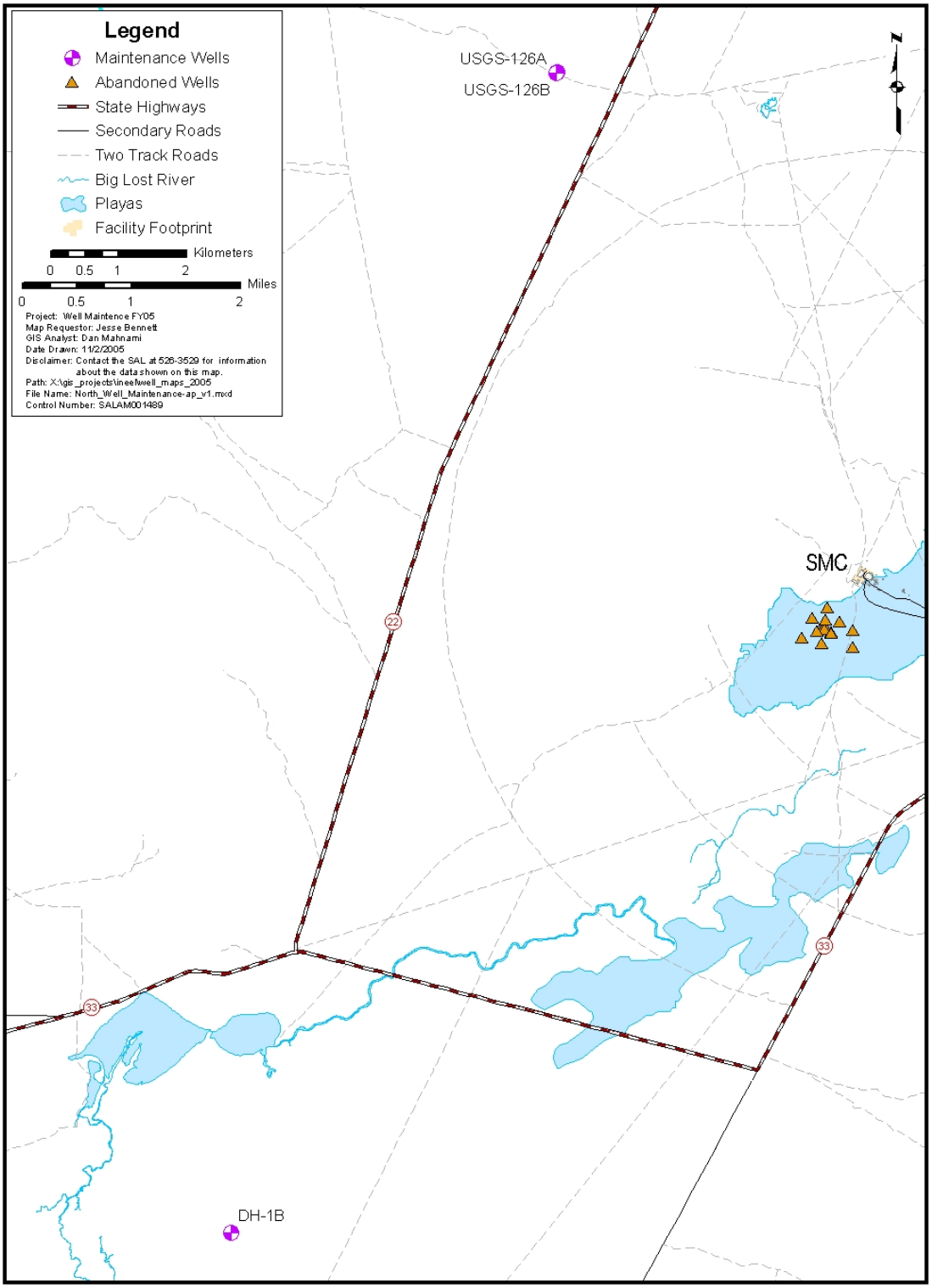

Figure 7. Location of wells northwest, and outside, of the Idaho National Laboratory Site boundary.

DH1B

WELL ID: 147

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: Two miles south of Howe

3. Date: 05/19/05–05/23/05

4. Video Log Information: Logging conducted previously had shown a 2-ft-long, 1-in.-wide piece of debris.

5. Maintenance Performed: The scope of work was to remove debris, extend the surface casing, and install a pump. A piece of 2-ft-long survey stake was removed from the well. The inner 6-in.-diameter casing was extended to 30 in. above the pad. The outer 10-in.-diameter casing was extended to 36 in. above the pad. Sixteen bags of bentonite were poured between the casings to seal to the surface. A new Grundfos 16S50-38 was placed in the well to a depth of 359 ft bls.

6. Observations Recorded: The water level was at 276.4 ft bls.

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Tony Anderson, Dale Gibbons, Hayes Jensen

USGS-OBS-A-126A

WELL ID: 1345

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: Birch Creek, northwest of Test Area North (TAN)

3. Date: 11/01/04–11/02/04

4. Video Log Information: The USGS performed video logging.

5. Maintenance Performed: The scope of work was to lower the water-level line and replace the pump and riser. Both pipelines were pulled from the well. The water-level line was replaced, and it was decided to add enough length to place the bottom of the water-level access pipe 60 ft below the water level. The water level was measured at 440.63 ft bls. The new pump is a Grundfos 16S50-38. The old galvanized pipe was replaced with stainless-steel pipe, and the pump was reinstalled to 614.63 ft bls (top of pump).

6. Observations Recorded: The well pad and box are in good condition.

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Tony Anderson, Hayes Jensen

USGS-OBS-A-126B

WELL ID: 1346

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: Birch Creek, northwest of TAN

3. Date: 11/02/04 –11/03/04

4. Video Log Information: The USGS performed video logging.

5. Maintenance Performed: The scope of work was to replace the pump line. The old pump was a 5-hp Grundfos and was reused in this well. Twenty-one feet of pipe was added to both the water-level access and riser line.

6. Observations Recorded: The water level was at 419.08 ft bls.

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Tony Anderson, Hayes Jensen

ANP-08

WELL ID: 76

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: One mile southwest of TAN

3. Date: 06/06/05–06/08/05

4. Video Log Information: No logging was performed.

5. Maintenance Performed: The scope of work was to install a pump. On 06/06/05, the old pump was removed, and a Grundfos Rediflow2 was installed. On 06/08/05, however, the new pump was removed from ANP-08 for use in another well, and another pump was ordered to be installed in ANP-08. This well was previously used as a production well but is now being used as a monitoring well. A Rediflow2 was installed to a depth of 270 ft bls in July, but rather than installing the pump on a riser pipe, the pump was suspended from a wire line with a Teflon discharge line.

6. Observations Recorded: None

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Tony Anderson, Hayes Jensen

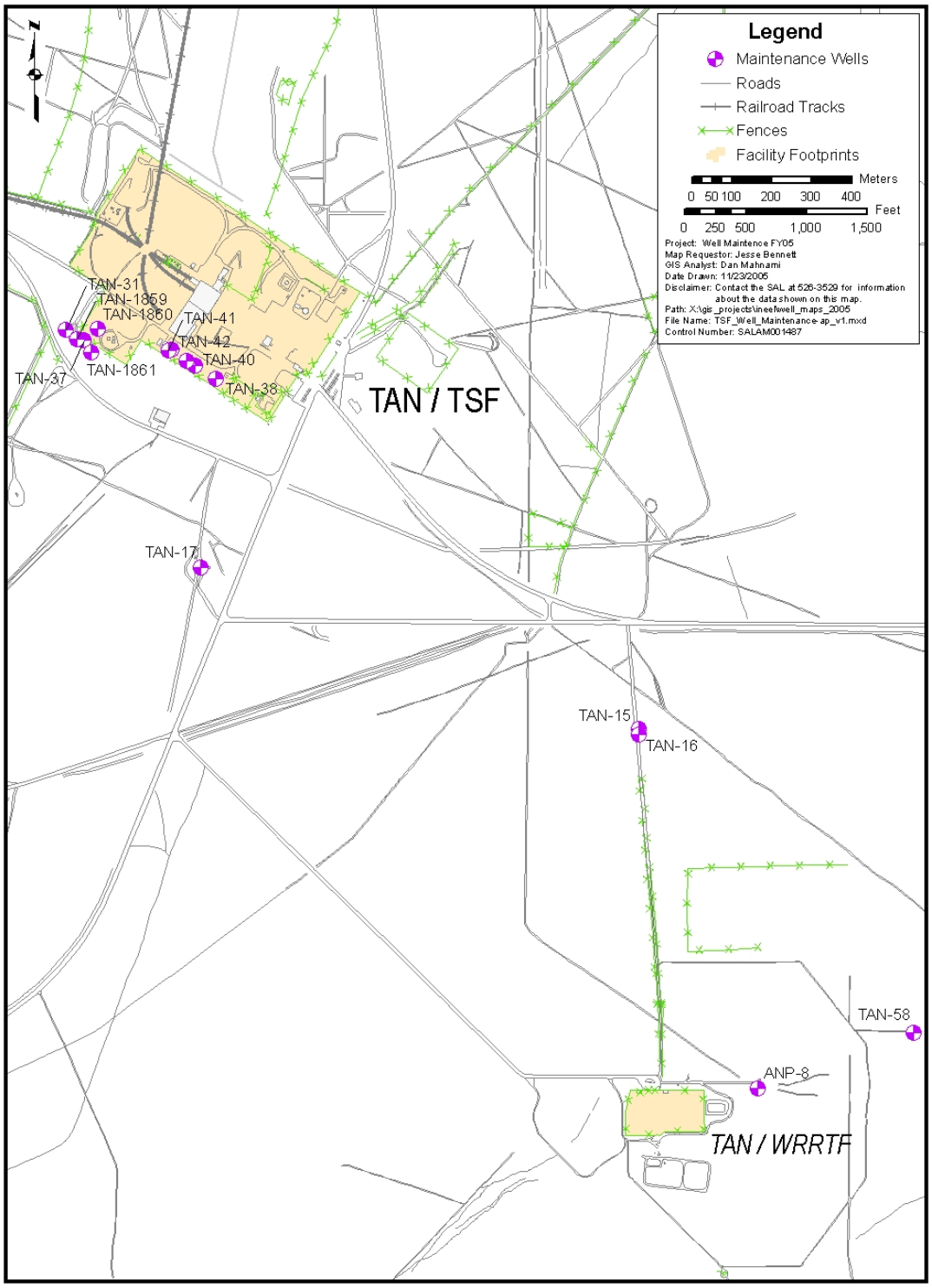

Figure 8. Location of wells in and around the Test Area North/Technical Support Facility and Test Area North/Water Reactor Research Test Facility.

TAN-15

WELL ID: 751

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: TAN

3. Date: 06/13/05

4. Video Log Information: No logging was performed.

5. Maintenance Performed: The carbon-steel water-level access and riser lines were replaced with stainless-steel lines. The pump was returned to its original depth.

6. Observations Recorded: None

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Tony Anderson, Dale Gordon, Hayes Jensen

TAN-16

WELL ID: 752

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: TAN

3. Date: 06/15/05

4. Video Log Information: No logging was performed.

5. Maintenance Performed: The carbon-steel water-level access and riser lines were replaced with stainless-steel lines. The pump was returned to its original depth.

6. Observations Recorded: None

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Tony Anderson, Dale Gordon, Hayes Jensen

TAN-17

WELL ID: 728

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: TAN

3. Date: 06/13/05

4. Video Log Information: No logging was performed.

5. Maintenance Performed: The carbon-steel water-level access and riser lines were replaced with stainless-steel lines. The pump was returned to its original depth.

6. Observations Recorded: None

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Tony Anderson, Dale Gordon, Hayes Jensen

TAN-1859

WELL ID: 1859

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: Southeast TAN

3. Date: 06/07/05

4. Video Log Information: No logging was performed.

5. Maintenance Performed: A 0.5-hp Rediflow2 was installed to a depth of 249.85 ft bls.

6. Observations Recorded: None

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Tony Anderson, Dale Gordon, Hayes Jensen

TAN-1860

WELL ID: 1860

1. Project Name: Sitewide Well Maintenance for FY 2005
2. Well Location: Southeast TAN
3. Date: 06/08/05
4. Video Log Information: No logging was performed.
5. Maintenance Performed: A 1/2-hp Rediflow2 pump was installed to a depth of 267.28 ft bls.
6. Observations Recorded: None
7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Tony Anderson, Dale Gordon, Hayes Jensen

TAN-1861

WELL ID: 1861

1. Project Name: Sitewide Well Maintenance for FY 2005
2. Well Location: Southeast TAN
3. Date: 06/08/05
4. Video Log Information: No logging was performed.
5. Maintenance Performed: A new Rediflow2 was installed to a depth of 238.34 ft bls.
6. Observations Recorded: None
7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Tony Anderson, Dale Gordon, Hayes Jensen

TANT-INJ-A-003

WELL ID: 1219

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: Central TAN

3. Date: 06/07/05

4. Video Log Information: No logging was performed.

5. Maintenance Performed: A Rediflow2 0.5-hp pump was installed to a depth of 257.81 ft.

6. Observations Recorded: None

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Tony Anderson, Dale Gordon

TANT-MON-A-011

WELL ID: 1163

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: Technical Support Facility (TSF)

3. Date: 06/02/05

4. Video Log Information: No logging was performed.

5. Maintenance Performed: The scope was to install pumps at two water levels. Two 1/2-horse power Rediflow2 pumps were installed to depths of 241 ft bls and 277 ft bls.

6. Observations Recorded: None

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Tony Anderson, Dale Gordon

TANT-MON-A-012

WELL ID: 1164

1. Project Name: Sitewide Well Maintenance for FY 2005
2. Well Location: TSF
3. Date: 06/02/05
4. Video Log Information: No logging was performed.
5. Maintenance Performed: The pump and 1-in.-diameter pipe were removed.
6. Observations Recorded: None
7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Tony Anderson, Dale Gordon

TANT-MON-A-013

WELL ID: 1165

1. Project Name: Sitewide Well Maintenance for FY 2005
2. Well Location: TSF
3. Date: 06/02/05
4. Video Log Information: No logging was performed.
5. Maintenance Performed: The pump and 3-in.-diameter pipe were removed.
6. Observations Recorded: None
7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Tony Anderson, Dale Gordon

TANT-MON-A-014

WELL ID: 1166

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: TSF

3. Date: 06/01/05

4. Video Log Information: No logging was performed.

5. Maintenance Performed: The pump and pipe were removed.

6. Observations Recorded: None

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Tony Anderson, Dale Gordon

TANT-MON-A-058

WELL ID: 1344

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: Southeast of TAN

3. Date: 06/02/05

4. Video Log Information: No logging was performed.

5. Maintenance Performed: A 0.5-hp Rediflow2 pump was planned for installation. It was determined that the water level was too deep for the planned pump to function, so the installation was not completed.

6. Observations Recorded: None

7. Maintenance Subcontractor: Major Drilling Co.

8. Field Lead: Joe Cook
   Crew: Tony Anderson, Dale Gordon

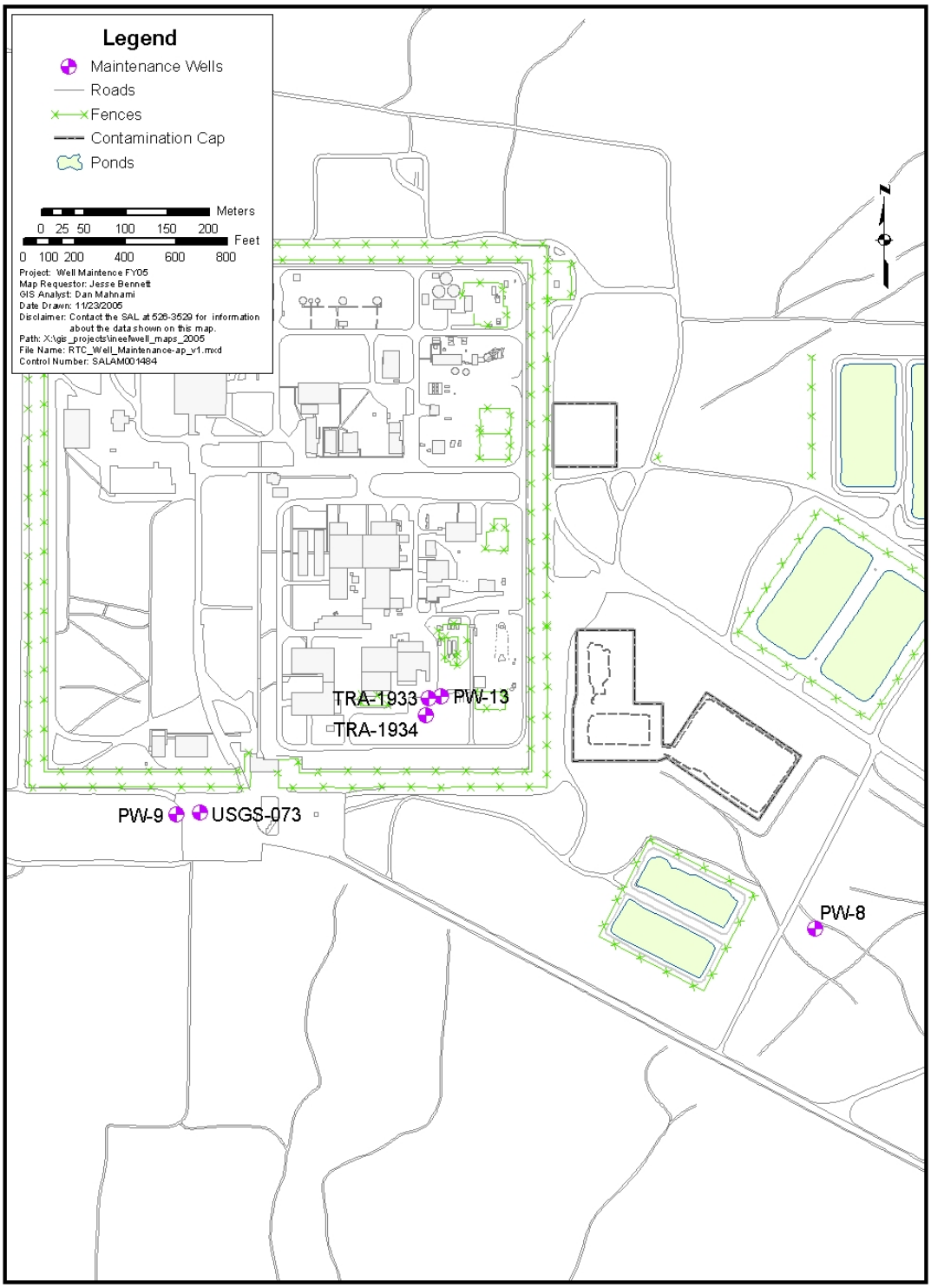

Figure 9. Location of wells in and around the Test Reactor Area.

PW-13

WELL ID: 761

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: Southwest corner of TRA

3. Date: 10/29/04

4. Video Log Information: No logging was performed.

5. Maintenance Performed: A new Rediflow2 pump was installed to a depth of 87.5 ft bls.

6. Observations Recorded: None

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Tony Anderson, Hayes Jensen

PW-8

WELL ID: 264

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: Southern INTEC at the north end of the old percolation ponds

3. Date: 10/06/05–10/20/05

4. Video Log Information: No logging was performed.

5. Maintenance Performed: A 0.5-hp Grundfos Rediflow2 pump was installed. The bottom of the pump was placed at the previous depth of 125.8 ft bls.

6. Observations Recorded: The water level was 71.3 ft bls on 10/20/05. The cement pad was in good condition.

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Gary Oberhansley
Crew: Trevor Anderson, Luis Rosario

PW-9

WELL ID: 265

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: Southern INTEC at the north end of the old percolation ponds

3. Date: 10/06/05–10/20/05

4. Video Log Information: No logging was performed.

5. Maintenance Performed: The scope of work was to replace the pump. The new pump is a 0.5-hp Grundfos Rediflow2. The bottom of the pump was placed at the previous depth of 189.3 ft bls.

6. Observations Recorded: The water level was 174.6 ft bls on 10/20/05. The cement pad was in good condition.

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Gary Oberhansley
Crew: Trevor Anderson, Luis Rosario

TRA-1933

WELL ID: 1933

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: Southeast corner of TRA, inside the fence and approximately 50 ft west of well PW-13

3. Date: 10/29/04

4. Video Log Information: No logging was performed.

5. Maintenance Performed: A new Rediflow2 pump was installed to a depth of 89.23 ft bls.

6. Observations Recorded: None

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Tony Anderson, Hayes Jensen

TRA-1934

WELL ID: 1934

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: Southeast corner of TRA-645

3. Date: 10/29/04

4. Video Log Information: No logging was performed.

5. Maintenance Performed: A new Rediflow2 pump was installed to a depth of 93.75 ft bls (pump bottom).

6. Observations Recorded: None

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Joe Cook
Crew: Tony Anderson, Hayes Jensen

USGS-073

WELL ID: 522

1. Project Name: Sitewide Well Maintenance for FY 2005

2. Well Location: Parking lot south of TRA

3. Date: 11/23/04

4. Video Log Information: No logging was performed.

5. Maintenance Performed: The scope of work was to change the Rediflow2 pump. When the pump was removed, it required a new coupling for attachment to the 1-in. (inside diameter) discharge tube. The pump was reinstalled to the original depth.

6. Observations Recorded: None

7. Maintenance Subcontractor: Major Drilling Co.

Field Lead: Steve Tawater
Crew: Luis Rosario, Tony Anderson, Trevor Anderson

3. WELL ABANDONMENT PERFORMED

Sixty-three wells, including well sets at the Specific Manufacturing Capability (SMC) facility at TAN, were abandoned during FY 2005. Table 2 lists the ID number, name, alias, and facility associated with each well. At the RWMC, 10 open borehole wells associated with the acid pit were abandoned (Figure 10). Thirty-four shallow observation wells near the old percolations ponds south of INTEC were also abandoned; most of these wells are outside of the facility fence (Figure 11). Southwest of the SMC facility, 14 wells or well sets used to monitor the movement of gas injected into the subsurface in the 1960s were abandoned (Figure 12). Appendix C contains the well abandonment forms.

"Fiscal Year 2005 Well Abandonment" (SPC-725) contains specific requirements for services and materials necessary for abandonment of wells at the INL Site. In general, surface pads and impingement posts are removed from abandoned wells. Additionally, surface casing and well casings 1 in. in diameter or greater are filled with bentonite grout and then cut 8 in. below grade. Any tubing (e.g., lysimeter, vapor port, and gas sampling point) less than 1 in. in diameter is cut and capped, crimped, or welded closed. Upon completion of these activities, the area surrounding the casing is backfilled with native soil. Any waste generated during these activities is disposed of per direction from Waste Generator Services.

Table 2. Wells abandoned in FY 2005.

Well ID	Well Name	Report Alias	Facility
774	ACID PIT I-07	ACID PIT I-07	RWMC
775	ACID PIT I-08	ACID PIT I-08	RWMC
776	ACID PIT I-09	ACID PIT I-09	RWMC
777	ACID PIT I-10	ACID PIT I-10	RWMC
779	ACID PIT I-12	ACID PIT I-12	RWMC
780	ACID PIT I-13	ACID PIT I-13	RWMC
784	ACID PIT P-01	ACID PIT P-01	RWMC
786	ACID PIT P-03	ACID PIT P-03	RWMC
788	ACID PIT P-05	ACID PIT P-05	RWMC
789	ACID PIT P-06	ACID PIT P-06	RWMC
164[a]	GIN 06	GIN 06	SMC
165[a]	GIN 07	GIN 07	SMC
167[a]	GIN 09	GIN 09	SMC
168[a]	GIN 10	GIN 10	SMC
169[a]	GIN 11	GIN 11	SMC
170[a]	GIN 12	GIN 12	SMC
171[a]	GIN 13	GIN 13	SMC
172[a]	GIN 14	GIN 14	SMC
173[a]	GIN 15	GIN 15	SMC
174[a]	GIN 16	GIN 16	SMC
175[a]	GIN 17	GIN 17	SMC
176[a]	GIN 18	GIN 18	SMC
177[a]	GIN 19	GIN 19	SMC
178[a]	GIN 20	GIN 20	SMC
1738	RWMC-SCIS-741-08	741-08	RWMC

Table 2. (continued).

Well ID	Well Name	Report Alias	Facility
1723	RWMC-SCI-S-DU-08	DU-08 VISUAL	RWMC
1718 [a]	RWMC-SCI-S-DU-10	DU-10 VISUAL	RWMC
1748 [a]	RWMC-SCI-S-DU-14	DU-14 VISUAL	RWMC
286	SWPP-01	SWPP-01	INTEC
287	SWPP-01A	SWPP-01A	INTEC
288	SWPP-02	SWPP-02	INTEC
290	SWPP-03	SWPP-03	INTEC
291	SWPP-03A	SWPP-03A	INTEC
292	SWPP-04	SWPP-04	INTEC
293	SWPP-04A	SWPP-04A	INTEC
294	SWPP-05	SWPP-05	INTEC
295	SWPP-05A	SWPP-05A	INTEC
296	SWPP-06	SWPP-06	INTEC
297	SWPP-06A	SWPP-06A	INTEC
299	SWPP-07A	SWPP-07A	INTEC
300	SWPP-08	SWPP-08	INTEC
302	SWPP-09	SWPP-09	INTEC
304	SWPP-10	SWPP-10	INTEC
307	SWPP-11A	SWPP-11A	INTEC
309	SWPP-12A	SWPP-12A	INTEC
310	SWPP-13	SWPP-13	INTEC
311	SWPP-13A	SWPP-13A	INTEC
312	SWPP-14	SWPP-14	INTEC
313	SWPP-14A	SWPP-14A	INTEC
315	SWPP-15A	SWPP-15A	INTEC
316	SWPP-16	SWPP-16	INTEC
318	SWPP-17	SWPP-17	INTEC
320	SWPP-18	SWPP-18	INTEC
321	SWPP-18a	SWPP-18a	INTEC
322	SWPP-19	SWPP-19	INTEC
323	SWPP-19A	SWPP-19A	INTEC
325	SWPP-20	SWPP-20	INTEC
327	SWPP-21A	SWPP-21A	INTEC
328	SWPP-22	SWPP-22	INTEC
329	SWPP-23	SWPP-23	INTEC
330	SWPP-24	SWPP-24	INTEC
331	SWPP-25	SWPP-25	INTEC
332	SWPP-26	SWPP-26	INTEC

a. This well comprises a group of vapor ports.

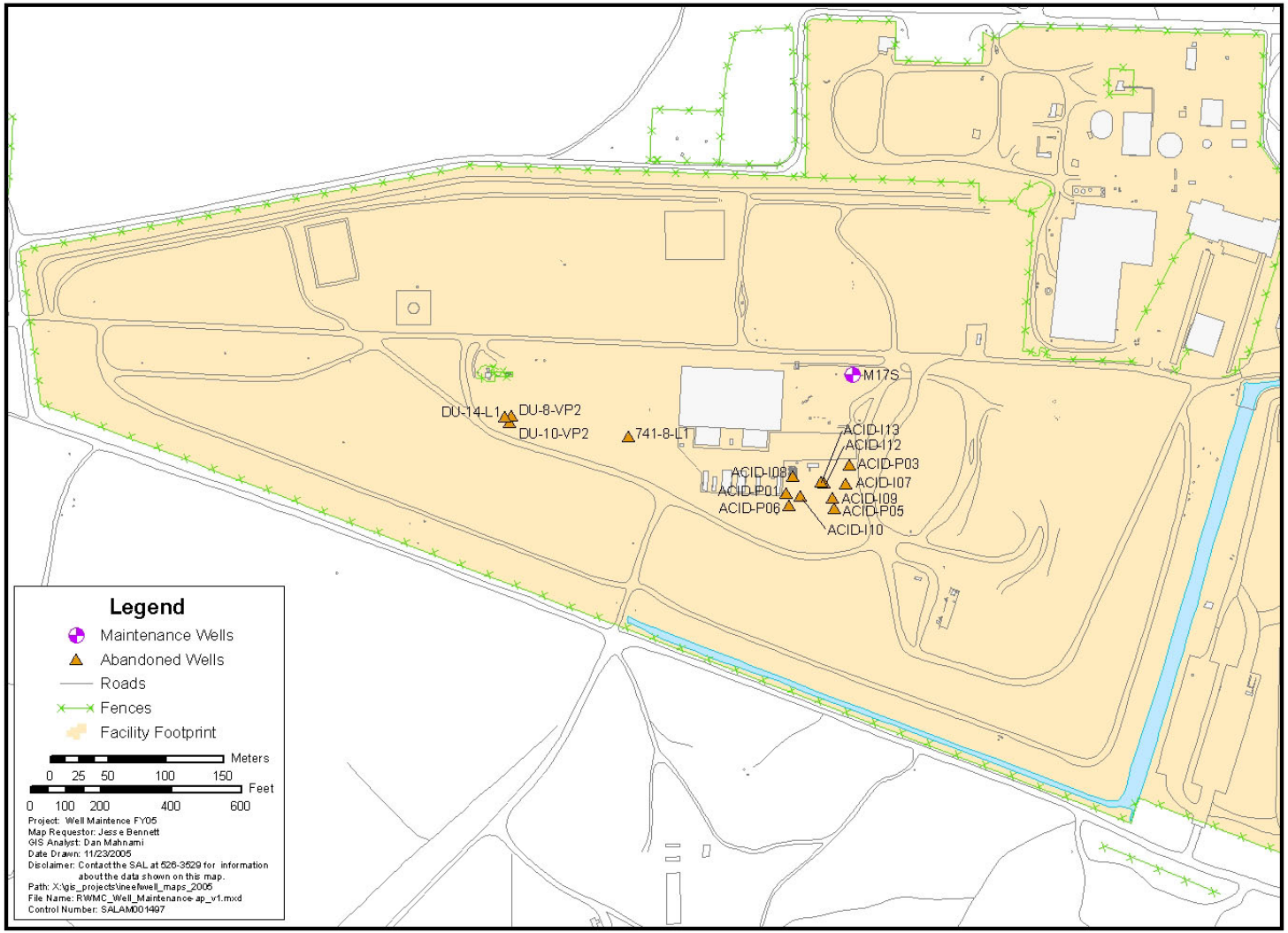

Figure 10. Ten abandoned open borehole wells associated with the acid pit at the Radioactive Waste Management Complex.

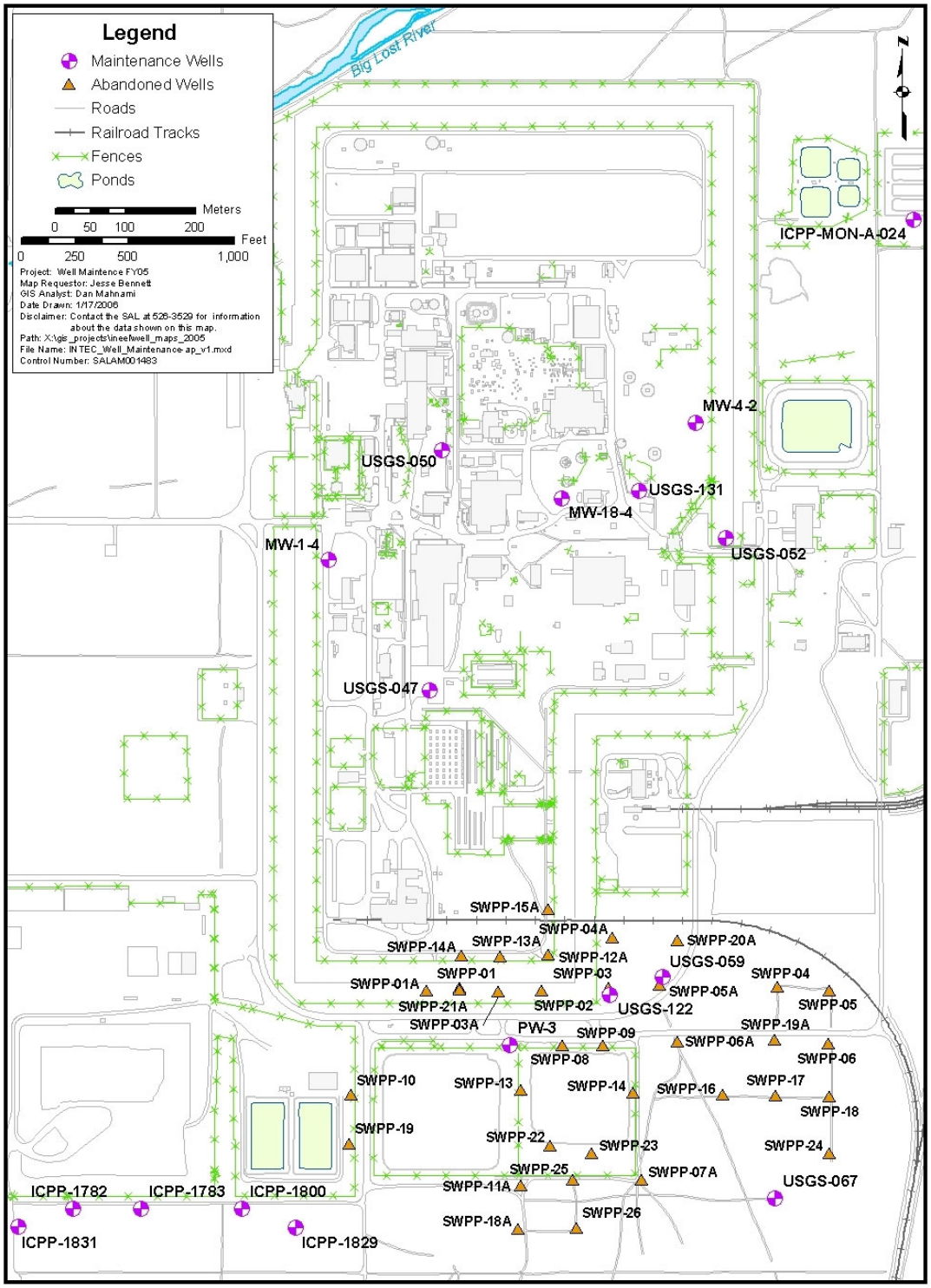

Figure 11. Thirty-four abandoned shallow observation wells near the old percolations ponds south of the Idaho Nuclear Technology and Engineering Center.

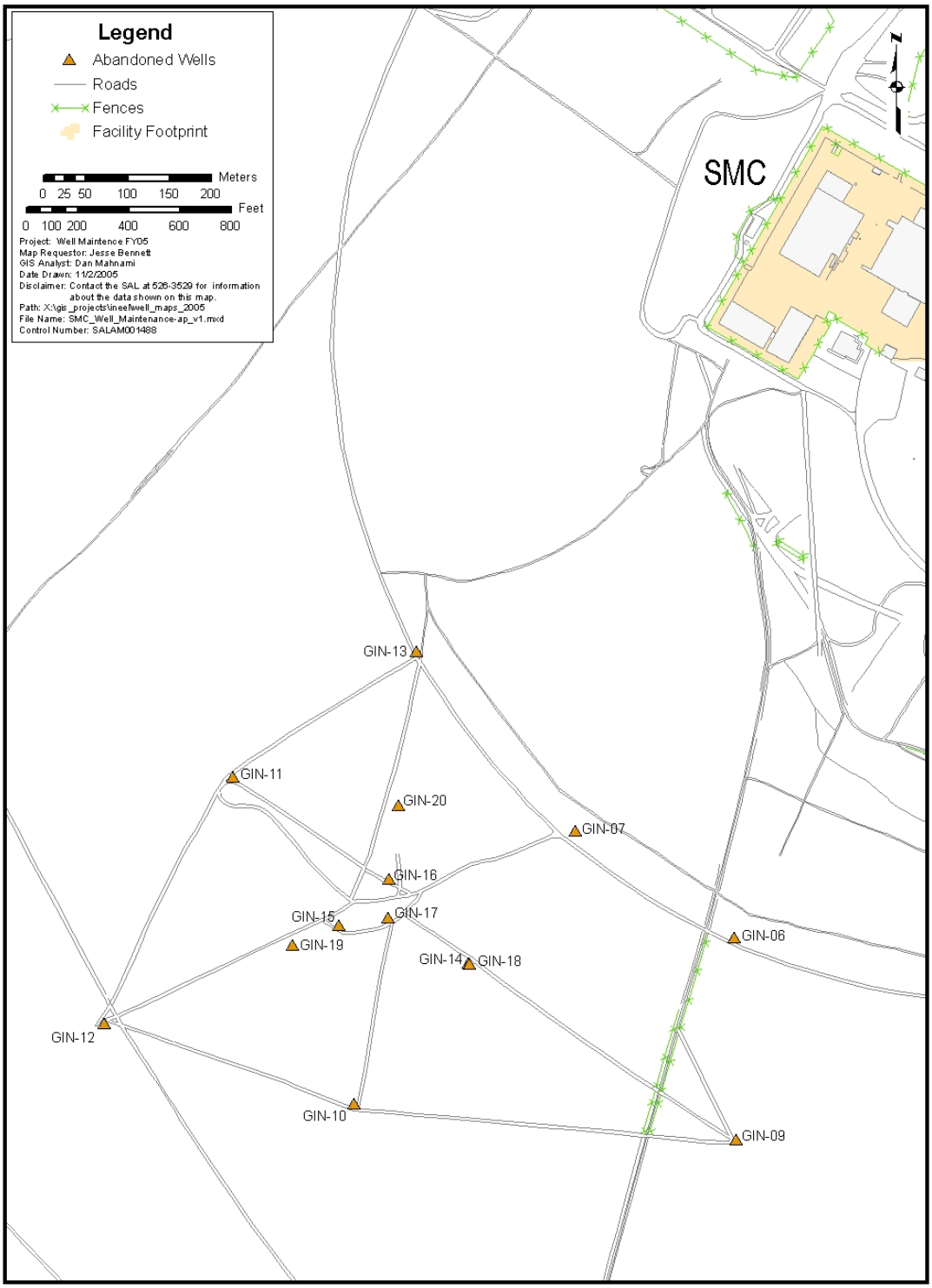

Figure 12. Fourteen wells or well sets abandoned southwest of the Specific Manufacturing Capability facility.

Table 3 shows well abandonments completed by groups other than Well Services. For information concerning these well abandonments contact the Well Services lead.

Table 3. Well abandonments completed by groups other than Well Services.

Well ID	Well Name	Alias	Facility
614	TRA FD9	SIW-9-TRA	RTC
615	TRA FD10	SIW-10-TRA	RTC
616	TRA FD11	SIW-11-TRA	RTC
774	ACID-PIT-I07	I07	RWMC
775	ACID-PIT-I08	I08	RWMC
776	ACID-PIT-I09	I09	RWMC
777	ACID-PIT-I10	I10	RWMC
779	ACID-PIT-I12	I12	RWMC
780	ACID-PIT-I13	I13	RWMC
784	ACID-PIT-P01	P01	RWMC
786	ACID-PIT-P03	P03	RWMC
788	ACID-PIT-P05	P05	RWMC
789	ACID-PIT-P06	P06	RWMC
1188	RWMC-NEU-S-094	Acid Pit NAT-1	RWMC
1189	RWMC-NEU-S-095	Acid Pit NAT-2	RWMC
1190	RWMC-NEU-S-096	Acid Pit NAT-3	RWMC
1191	RWMC-NEU-S-097	Acid Pit NAT-4	RWMC
1192	RWMC-NEU-S-098	Acid Pit NAT-5	RWMC
1193	RWMC-NEU-S-099	Acid Pit NAT-6	RWMC
1756	RWMC-SCI-S-741-08	741-08	RWMC
1760	RWMC-SCI-S-DU-08-V	DU-08-V	RWMC
1761	RWMC-SCI-S-DU-10-V	DU-10-V	RWMC
1762	RWMC-SCI-S-DU-14-V	DU-14-V	RWMC
1960	RWMC-1960	HAL1	RWMC
1961	RWMC-1961	HAL2	RWMC
1963	RWMC-1963	HAL4	RWMC
1577	RWMC-SCI-S-Pit5-1-2	Pit5-1-2	RWMC
1579	RWMC-SCI-S-Pit5-1-4	Pit5-1-4	RWMC
1991	RWMC-1991	P2-PU-1	RWMC
1993	RWMC-1993	P2-PU-3	RWMC
1994	RWMC-1994	P2-PU-4	RWMC
1995	RWMC-1995	P2-PU-5	RWMC
1581	RWMC-SCI-S-Pit5-1-6	Pit5-1-6	RWMC
1582	RWMC-SCI-S-Pit5-1-7	Pit5-1-7	RWMC
1589	RWMC-SCI-S-Pit5-4-6	Pit5-4-6	RWMC
1590	RWMC-SCI-S-Pit5-4-7	Pit5-4-7	RWMC
1979	RWMC-1979	P5-UEU-1	RWMC
1585	RWMC-SCI-S-Pit5-4-2	Pit5-4-2	RWMC

Table 3. (continued).

Well ID	Well Name	Alias	Facility
1997	RWMC-1997	P5-UEU-9	RWMC
1967	RWMC-1967	P6-PU-1	RWMC
1969	RWMC-1969	P6-PU-3	RWMC
1982	RWMC-1982	P5-UEU-4	RWMC
1983	RWMC-1983	P5-UEU-5	RWMC
1984	RWMC-1984	P5-UEU-6	RWMC
1986	RWMC-1986	P5-UEU-8	RWMC
1964	RWMC-1964	P10-PU-1	RWMC
1965	RWMC-1965	P10-PU-2	RWMC
1562	RWMC-SCI-S-P9-FI-02	P9-FI-02	RWMC
1563	RWMC-SCI-S-P9-FI-03	P9-FI-03	RWMC
1565	RWMC-SCI-S-P9-FI-05	P9-FI-05	RWMC
1567	RWMC-SCI-S-P9-FI-07	P9-FI-07	RWMC
1568	RWMC-SCI-S-P9-FI-08	P9-FI-08	RWMC

4. SURVEILLANCE PERFORMED

Surveillance was performed on 95 wells in FY 2005. The maintenance to be performed in FY 2006 will be based partially on the information obtained during surveillance activities.

Table 4 lists the ID, name, and general condition of each FY 2005 surveillance well. Transcribed copies of surveillance forms are included in Appendix C. Original surveillance forms are on file with the Hydrogeologic Data Repository. For information regarding the type of maintenance necessary at each well noted as requiring maintenance see the specific surveillance forms located in Appendix C. All wells identified as requiring maintenance will be added to the well maintenance schedule. Well maintenance needs will be prioritized by the Well Services lead. Figures 13 through 15 show the locations of the wells.

Table 4. ID, name, and general condition of each well that underwent surveillance in FY 2005.

Well ID	Well Name	Condition Good	Needs Maintenance
1781	ICPP-1781		X
1782	ICPP-1782		X
1783	ICPP-1783		X
1800	ICPP-1800		X
1801	ICPP-1801		X
1802	ICPP-1802		X
1803	ICPP-1803		X
1804	ICPP-1804		X
1807	ICPP-1807		X
1829	ICPP-1829		X
1831	ICPP-1831		X

Table 4. (continued).

Well ID	Well Name	Condition Good	Needs Maintenance
2018	ICPP-2018		X
2019	ICPP-2019		X
2020	ICPP-2020		X
2021	ICPP-2021		X
1074	ICPP-MON-P-020		X
1073	ICPP-MON-P-018		X
1070	ICPP-MON-P-017		X
1073	ICPP-MON-P-015		X
1069	ICPP-MON-P-014		X
1063	ICPP-MON-P-007		X
1062	ICPP-MON-P-006		X
1059	ICPP-MON-P-003		X
1065	ICPP-MON-P-009		X
1442	ICPP-MON-A-230		X
1057	ICPP-MON-A-001	X	
1428	ICPP-SCI-P-216		X
1429	ICPP-SCI-P-217		X
1430	ICPP-SCI-P-218		X
1431	ICPP-SCI-P-219		X
1432	ICPP-SCI-P-220		X
1433	ICPP-SCI-P-221		X
1434	ICPP-SCI-P-222		X
1435	ICPP-SCI-P-223		X
1436	ICPP-SCI-P-224		X
1437	ICPP-SCI-P-225		X
1438	ICPP-SCI-P-226		X
1439	ICPP-SCI-P-227		X
1440	ICPP-SCI-P-228		X
1441	ICPP-SCI-P-229		X
1445	ICPP-SCI-P-245		X
1443	ICPP-SCI-P-247		X
1444	ICPP-SCI-P-248		X

Table 4. (continued).

Well ID	Well Name	Condition Good	Needs Maintenance
1446	ICPP-SCI-P-250		X
1447	ICPP-SCI-P-251		X
1448	ICPP-SCI-P-252		X
1236	ICPP-SCI-S-132		X
196	LF2-08		X
197	LF2-09		X
198	LF2-10		X
199	LF2-11	X	
724	LF2-12		X
207	LF3-08		X
726	LF3-09		X
727	LF3-10		X
257	PW-1		X
258	PW-2	X	
259	PW-3	X	
260	PW-4		X
261	PW-5		X
262	PW-6	X	
1132	RWMC-MON-A-066		X
349	TAN-11		X
748	TAN-12		X
560	USGS-111		X
561	USGS-112		X
562	USGS-113	X	
563	USGS-114		X
	USGS-115		X
	USGS-116		X
	USGS-121		X
571	USGS-122	X	
	USGS-123		X
	USGS-124		X
1413	USGS-128		X

Table 4. (continued).

Well ID	Well Name	Condition Good	Needs Maintenance
463	USGS-14		X
483	USGS-34		X
482	USGS-33		X
485	USGS-36		X
486	USGS-37		X
487	USGS-38		X
488	USGS-39	X	
489	USGS-40		X
490	USGS-41		X
491	USGS-42		X
492	USGS-43	X	
493	USGS-44		X
494	USGS-45		X
495	USGS-46		X
497	USGS-48		X
498	USGS-49	X	
499	USGS-50		X
500	USGS-51		X
501	USGS-52	X	
506	USGS-57		X
508	USGS-59		X
516	USGS-67	X	
526	USGS-77		X
531	USGS-82		X
533	USGS-84		X
534	USGS-85		X
535	USGS-86		X

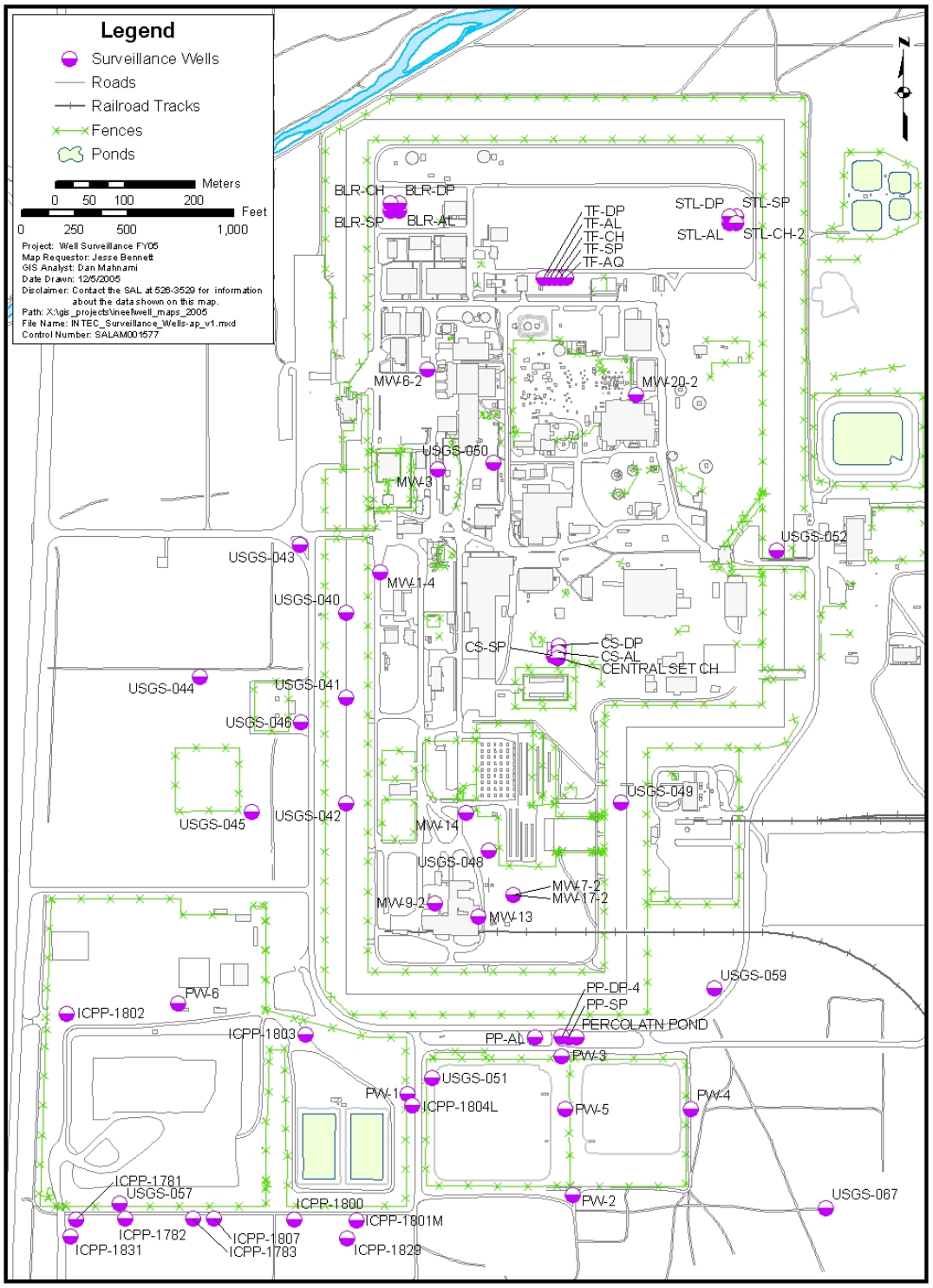

Figure 13. FY 2005 surveillance wells at the Idaho Nuclear Technology and Engineering Center.

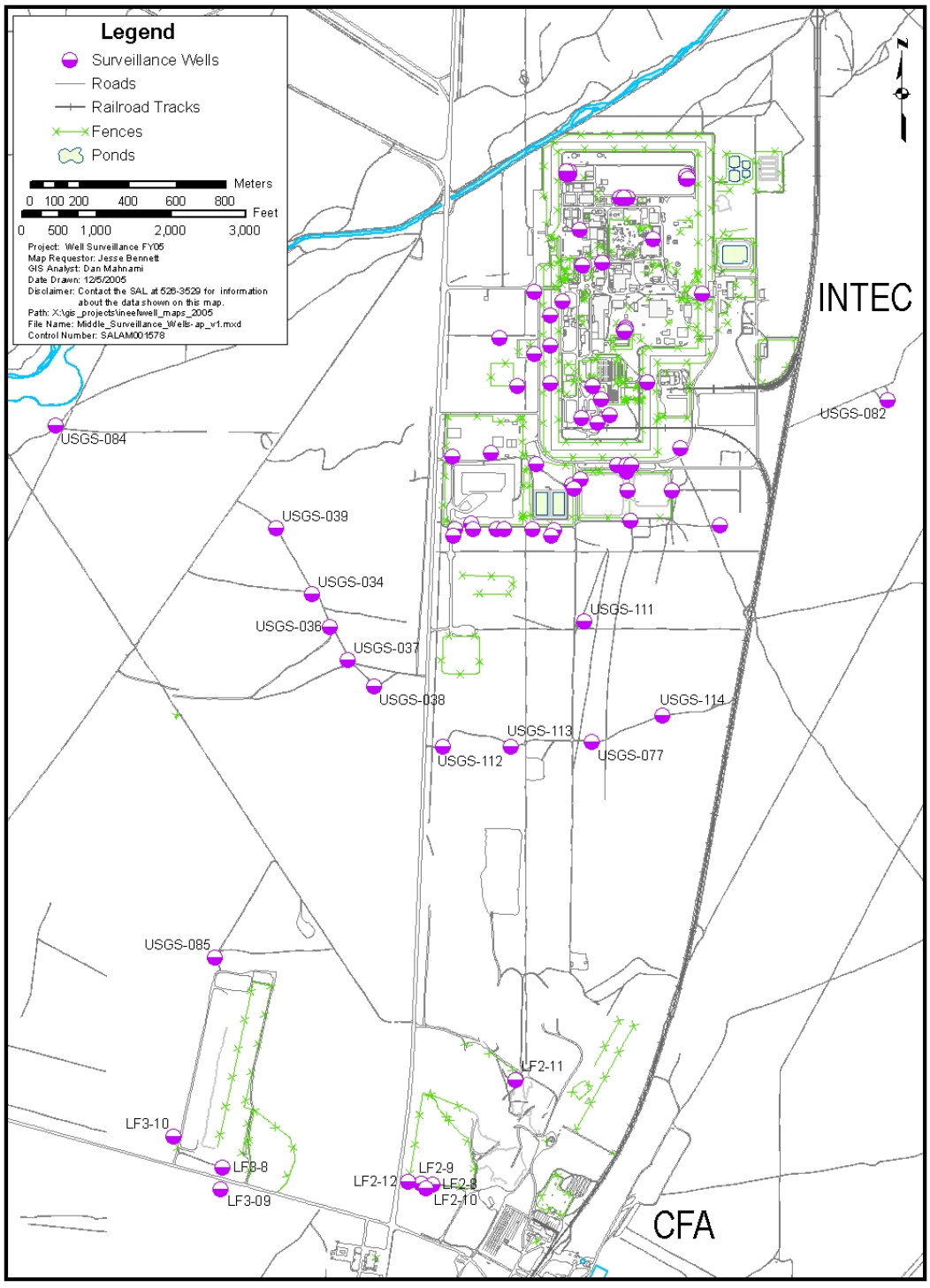

Figure 14. FY 2005 surveillance wells outside the Idaho Nuclear Technology and Engineering Center security fence.

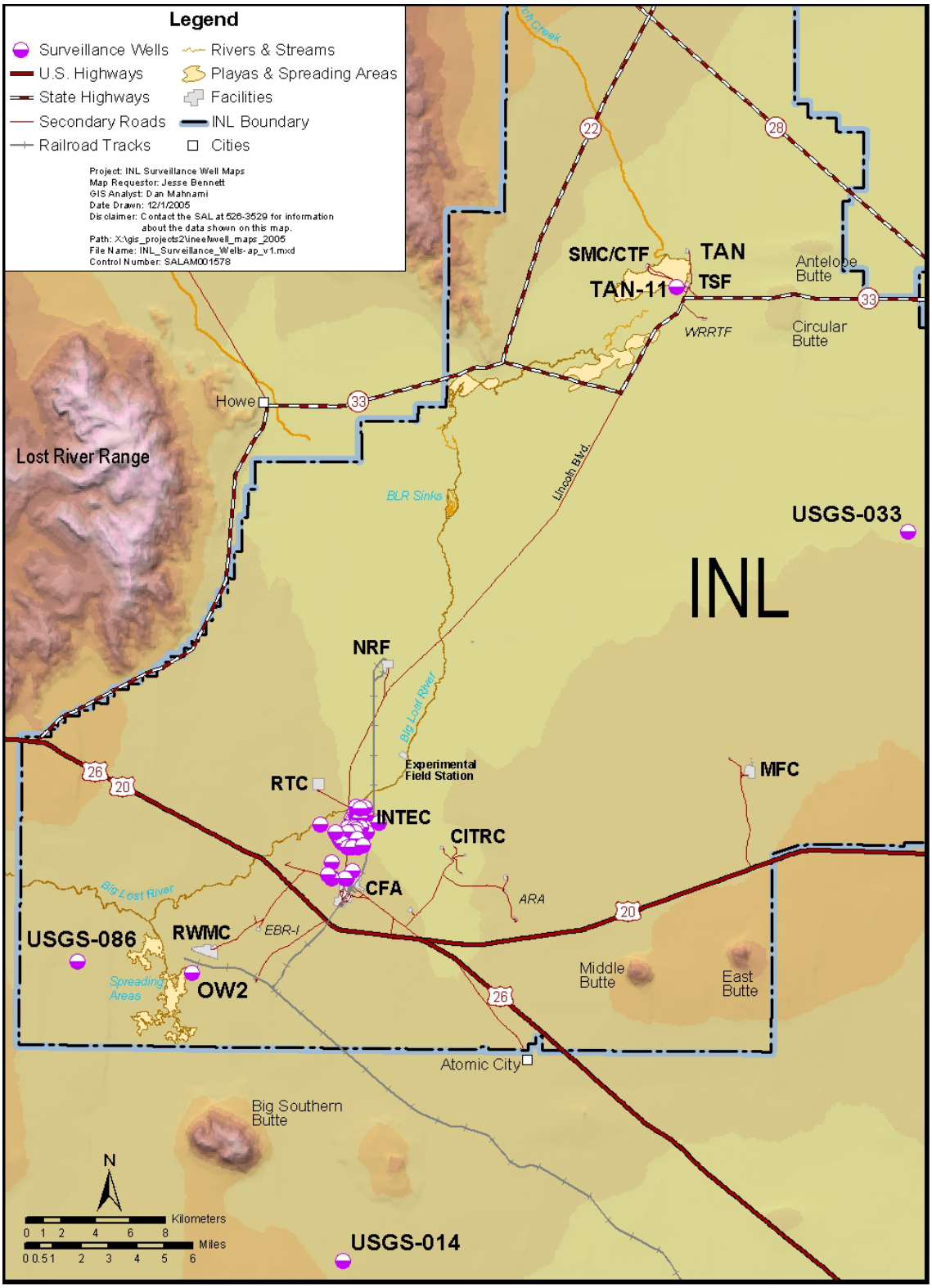

Figure 15. FY 2005 surveillance wells in outlying areas of the Idaho National Laboratory Site.

5. SUMMARY

The well inspections discussed in this report identified various maintenance issues that will impact the well maintenance activities for FY 2006. Well maintenance activities conducted in FY 2005 included 63 wells that were identified in the logbook as having modifications performed. Maintenance also included carryover work from the *Well Maintenance Work-off Schedule for Fiscal Years 2003, 2004, and 2005* (INEEL 2003) and from the "Sitewide Well Maintenance and Well Cap Replacement at the INEEL in FY 2003" (SOW-1063). Additionally, the work included maintenance that was not part of the original statement of work for FY 2004 (SOW-1062).

Any well that required work by Well Services personnel was considered "maintained" and is included in this report. Deviation logging was conducted by the USGS. Well Services was informed of wells with problems identified during routine sampling (e.g., bailers or weights lodged in the well). Although these wells were not scheduled for maintenance, they were added to the schedule and maintained as part of routine maintenance. Those wells are addressed in this report in order to record the completed actions and avoid duplication of efforts in coming years.

5.1 Recommended Actions

Forty-two wells were identified in the surveillance activities as requiring maintenance. Seventeen wells need a label or brass cap added. Eight wells need the electric plug either wired or the connection wrapped for better protection. Five wells need the posts painted, and four wells need replacement of, or repairs on, the well box. Two wells are missing impingement posts. See the Table 4 and surveillance forms in Appendix C for details. Wells identified as requiring maintenance during surveillance, maintenance, or sampling will be scheduled for maintenance activities to be accomplished in FY 2006 by the Well Services lead. Maintenance will be completed on a priority basis.

5.2 Needed Maintenance Activities

In addition to the maintenance activities listed in Section 4, the following activities will need to be performed:

1. Survey the new location of the brass cap at USGS-047.
2. Survey the coordinates for MIDDLE-2050 and -2051.
3. Properly label INEL 1 and WS INEL 1.
4. Install a pump in ANP-08.

6. REFERENCES

ICP, 2004, *Long-Term Stewardship Fiscal Year 2004 Well Abandonment/Surveillance/Maintenance Report*, ICP/EXT-04-00727, Rev. 0, Idaho Cleanup Project, January 2005.

INEEL, 2003, *Well Maintenance Work-off Schedule for Fiscal Years 2003, 2004, and 2005*, INEEL/EXT-02-01462, Rev. 0, Idaho National Engineering and Environmental Laboratory, January 2003.

PLN-758, 2000, "Idaho National Engineering and Environmental Laboratory Sitewide Well Maintenance Plan," Rev. 0, Idaho National Engineering and Environmental Laboratory, December 2000.

SOW-1062, 2003, “Sitewide Well Maintenance at the INEEL in FY 2004,” Rev. 0, Idaho National Engineering and Environmental Laboratory, March 2004.

SOW-1063, 2003, “Sitewide Well Maintenance and Well Cap Replacement at the INEEL in FY 2003,” Rev. 0, Idaho National Engineering and Environmental Laboratory, July 2003.

SPC-598, 2003, “Sitewide Well Maintenance at the INEEL in Fiscal Year 2005,” Idaho National Engineering and Environmental Laboratory, October 2003.

SPC-725, 2005, “Fiscal Year 2005 Well Abandonment,” Rev. 0, Idaho Cleanup Project, August 2005.